A STUDY OF METHODS FOR IMPLEMENTING A GOAL-SETTING SYSTEM FOR INCREASING DIRECT PATIENT CONTACT BY PSYCHOLOGISTS IN A STATE HOSPITAL

By

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Though custom may be to dedicate a dissertation to one person, I would like to dedicate this paper to two individuals who have earned the degree of respect and admiration I simply do not hold for most others. My wife Nicolette has shown the support and dedication to my education that few graduate students enjoy. At times when the wives of other graduate students left them after long years of graduate training, my wife remained loyal in her role as my partner. She worked long hours in sometimes unpleasant jobs, endured periods of little entertainment, and survived on a meager income at times others of our age were enjoying a middle class life style of much less stress and sacrifice. After seeing what unfortunately happened to the marriages of many of my peers during graduate school, I can only consider myself far more fortunate in having a partner as interested in education as my wife has been.

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Abstract of Dissertation Presented to the Graduate School of the University of Florida in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

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A study of psychologists was completed in two phases. The behaviors of psychologists were studied in state hospital, private hospital and private practice settings during Phase 1. Times allocated to different duties were identified and compared across settings. When compared with other settings, direct patient contact by state hospital psychologists was very low. Time spent in paperwork was comparatively very high. A goal-setting system was chosen to increase the amount of direct patient contact by state hospital psychologists. Several different methods of implementing the management system were studied for their relative effects on the behaviors of psychologists during Phase 2. These methods were scheduling patient contact, self-charting of behaviors on a posted semilogarithmic chart, and specific target times for completion of individual duties required on the job.

Results showed that the general effects of these procedures were inconsistent in achieving goals for direct patient contact. Unlike the majority of previous studies on goal setting, consistent achievement of the objective, rather hard to reach goal did not occur. Providing individual task objectives and self-charting appeared to provide somewhat more control over responding and tended to decrease variability when compared with procedures such as scheduling direct patient contact. Goal-setting did not appear as effective when subjects could engage in a wide variety of competing responses, when there were no monetary incentives to support the goals, and when direct line management was not directly involved on a daily basis.

CHAPTER I
INTRODUCTION

State institutions for the mentally retarded and mentally ill have provided the setting for a significant portion of the early research in applied behavior analysis. Various procedures such as token economies, overcorrection, time-out, positive practice and chaining were successfully applied to patients' behavioral problems. Behavior modification procedures were sufficiently successful that early accreditation standards (Department of Health, Education and Welfare (DHEW) and Joint Commission on Accreditation of Hospitals (JCAH)) recognized the utility of these procedures. Standards called for behavior modification programs as a routine component of rehabilitation plans.

Successful rehabilitation of patients requires active and efficient utilization of available staff. The accreditation standards have stated the appropriate characteristics of living conditions and training to be provided to patients. Merely accrediting a facility, however, does not ensure that patients actually receive the services year round. For example, Bible and Sneed (1976) found that the actual programming available to patients increased by 276% during the days a JCAH team was inspecting a facility. Repp and Barton (1980) studied the relative amounts of services

delivered to patients of both licensed and unlicensed facilities, measuring both patient and staff behaviors. Patient behaviors studied included various types of aggression, self-abuse and self-stimulation. Staff behaviors studied included custodial activities, various types of instruction and verbal and social interaction. Results of the study indicated no significant difference in either staff or patient behaviors between licensed and unlicensed facilities. Only transient improvements occurred in the presence of site inspectors. The regulations appeared to be of little value in ensuring adequate long-term programming and instructions.

Studies such as the Repp and Barton (1980) study arouse suspicion about the productivity and effectiveness of government programs. They also arouse suspicion about how well employees are utilized in public sector settings such as state institutions. The public sector has been a steady source of jobs for applied and experimental psychologists, particularly those specializing in applied behavior analysis. A legitimate concern is whether or not the special skills of psychologists are fully utilized in a public sector setting such as a state institution.

A college or university has invested thousands of dollars in each psychology graduate. Likewise, each graduate has invested several years and thousands of dollars in the education necessary to become a psychologist. The expensive and prolonged training should result in a graduate who is

adequately utilized in the work setting. This study addressed the issue of how psychologists with an applied behavior analysis background are utilized in public sector settings and how their utilization might be improved.

Operant Methodology in Organization Settings

Research on employee performance in government and private industry has focused on a variety of behavior management procedures. Latham and Kline (1974) studied the effects of goal-setting on production of tree-cutting crews. The crews had all worked on a piece-rate system with no previously established production goals. The crews in the experimental condition were given a one-day training session in goal setting. Production goals of trees cut per saw-hand hour were established and given per day or week to the crew sawyer. No differential negative consequences were established for achieving or failing to achieve production goals. Feedback was provided through tally meters that could be used continuously by crews to monitor production. Crews with production goals produced at a significantly higher level than those without production goals. Two points appeared particularly important. The first was the complete absence of previous standards of comparison regarding adequate production. The second point was that the piece-rate system did provide a pay increase contingent on production increases. As such, there was an inherent reinforcement mechanism for

controlling production in addition to the goal setting. Pay increased after production increased.

Latham and Baldes (1975) utilized goal setting in another study of logging operations. Logging truck drivers who were paid by the hour had been hauling loads considerably below the maximum weight allowed per truck. A goal of 94% of maximum legal net weight was established as the minimum load to be transported. Supervisors were to present brief praise to drivers for achieving the established goal but no specific aversive consequences were established. Feedback was available at the weigh stations where drivers were told the weights of their loaded trucks prior to dumping. Significant increases in performance were achieved and maintained across nine months duration. The authors pointed out that goal setting achieved an apparent increase in productively without differential monetary consequences for the behaviors involved. What was not stressed by the authors, however, was that load weights were public knowledge to the drivers and management. A driver not achieving the stated weight goal would be readily visible to his peers and management. One could question whether or not the public visibility had an effect on behaviors.

Eldridge, Lemasters and Szypot (1978) utilized goal setting to reduce material waste in a production department. A goal of 75% piece yield (actual versus theoretical maximum production) was established. Subjects calculated and

recorded their own piece yields daily. Supervisors then collected the data and charted the data on posted charts in the work area. Positive verbal and written comments were presented to employees daily. Piece yields increased significantly. The authors attributed some of the success of this program to the fact that there had not been previously established standards. The employees did not have guidelines concerning acceptable quality. An incidental effect of the program was an increase in production, thus providing an incentive for management to support the program.

Sulzer-Azaroff (1978) studied hazard reduction in laboratory settings. An observational system was developed in which observers inspected a laboratory and recorded any of several types of hazards at least monthly. Feedback was then presented to each laboratory supervisor. Significant reductions or elimination of hazards occurred in each of several categories for several laboratories. However, 10 of the laboratories failed to improve. The author attributed this to several possible factors. One factor was that the feedback was only corrective and no praise was given for improved performance. There were no other contingencies on the laboratory directors, such as differential pay consequences. In some cases, the laboratory supervisor could not do anything about the hazards. The author also noted that some supervisors simply seemed disinterested in making any changes in the laboratory hazards.

In their 1980 study, Sulzer-Azaroff and Santamaria defined 18 hazards in an industrial plant. Production staff were given the general goal of eliminating each of the hazards from the plant operations. External observers inspected the plant twice per week. A summary chart of observed hazards was prepared after each inspection and shown to the production staff by a member of line management. Congratulatory comments or corrective comments were made according to whether observer hazards increased or decreased. There were no differential pay or punishment consequences other than the congratulatory or corrective comments. Observed hazards consistently decreased across settings after implementation of this procedure. One major component may have been the direct participation of line management in the feedback process. The authors stressed the simplicity and ease with which the procedure could be completed. The authors also noted an incidental production increase after implementation of the hazard reduction program. The production increase may have resulted from better plant and materials organization. The incidental production increase may have helped earn management's continued support of the program.

Terborg and Miller (1978) studied both goal setting and method of payment on performance of employees in a production task. They demonstrated that quality of performance as measured by an inspection of finished products increased with

a goal specifying quality requirements. Quantity of production was higher under a piece rate pay system than under an hourly pay system. Quantity goals alone were also associated with higher production. The authors suggested that more emphasis be placed on the chain of observable behaviors involved in the production task rather than simply focusing on the end product. They suggested that the goal setting procedures used may differentially generate behaviors involved in high quantity as opposed to high qualtiy production.

Particular studies have dmonstrated rather remarkable improvements in public employee productivity and were effective in identifying the conditions preventing achievement of desired productivity. Hershaver (1978) studied productivity of police officers. He found that officers had to complete as many as 20 different forms for a single offense. Over 30 separate forms existed and had to be completed depending on the case. It appeared that behaviors involved in filling out forms took so much time that behaviors involved in apprehending criminals were reduced. Schnier, Pernick, and Bryant (1979) produced massive increases in employee productivity in a Federal agency. Key components of the program included defining those responses or response products that were to be produced by employees. Employee behaviors were observed and performance feedback forms were presented to the employees. Improvement in productivity averaged 92% and ranged from 77-100%. Other components consisted of setting work priorities.

removal of competing activities, and reinforcement contingencies for the behaviors of supervisors who utilized feedback and praise. Larson, Schnell, Kirchner et al. (1980) studied the effects of different types of monitoring speed, miles driven, and other measures on auto accidents among urban police officers. A prototype system resulted in significant reductions in auto accidents. Their studies have demonstrated consistent success in the utilization and application of operant procedures in organizational research.

The basic problems addressed in the preceding studies involved identifying what behaviors the employee should be exhibiting. The experimenters then had to identify a means of directly observing the behavior, or else identify a measurable product of the employee's behavior. Once a measuring system was developed, variables could be altered to identify changes in the measured behaviors or product of behaviors.

Behavioral Measures of a Psychologist's Performance

A psychologist holds a "professional" position that requires functioning in a variety of stimulus settings. The psychologist has to exhibit a variety of behaviors that may or may not leave some measurable product such as a psychological report, journal article or written behavioral program for a patient. One might also use changes in the behaviors of patients as an indication of the effectiveness of a psychologist. However, the psychologist is not necessarily in a

position to change a patient's behavior due to lack of control over relevant variables in the patient's environment. Direct care staff such as nurses' aides or mental health technicians are typically not under the continuous supervision of a psychologist. The psychologist may simply not have administrative control over the staff to an extent that will allow consistent program completion. The behaviors of patients are not valid indicators of the effectiveness of the psychologist since so many uncontrolled variables can operate at any given time.

In summary, one is confronted with a rather difficult problem in identifying what to measure and how to measure it in studying psychologists in employment settings. Measurement problems have been addressed by several researchers working with organizational settings, as indicated in the following discussions.

Measurement Strategies in Operant Research

The proliferation of studies on employee utilization and productivity has prompted extensive discussion of appropriate measures and measurement strategies in conducting organizational research. Turner and Craig (1978) utilized behavioral task analysis, measurement of task time, and measures of response effort to improve the operation of a school cafeteria. These authors advocated simple measures, precise response definitions and direct observation of

employee behaviors. Using such an approach, they produced time savings of 50-64% in completing various tasks. Similar reductions in task time were obtained in a study of library employees. Procedures that were simple to learn and utilize were particularly important in producing positive results.

Guthrie (1976) advocated that quantifiable output units should be defined and measured in monitoring employee productivity. Frequency of output and time per unit of output were suggested as critical measures. Hatry (1976) advocated the use of "unit cost," "work standards," and ratio of output to input in measuring "efficiency." Systematic use of trained observers was a critical component of his approach. McDonald (1976) indicated that goals and objectives must be established as methods of defining appropriate behaviors. Actual behaviors can be identified and measured, then compared with target behaviors necessary to achieve the desired objectives. Hatry (1976) specified several criteria for behavioral performance measures. These criteria include 1) validity/accuracy; 2) understandability; 3) timeliness; i.e., can data be gathered and used quickly; 4) potential for producing behavior contrary to organization objectives; 5) uniqueness; i.e., does it reveal some aspect of performance not revealed by other measures; 6) data collection costs; 7) controllability; 8) comprehensiveness.

In determining whether performance in a government setting is good or bad, Hatry suggested several ways of

making comparisons of performances 1) compare actual performance against performance standards; 2) compare current with past performance; 3) compare current performance of several units; 4) compare outcomes for client groups; 5) compare performance with that of the private sector; 6) compare resource utilization measures; 7) compare productivity indices; 8) compare pseudo-measures; i.e., staff-patient ratios.

McDonald's (1976) emphasis on identifying actual behaviors exhibited and comparing these with target behaviors appears to be useful in identifying whether the observed behaviors are appropriate for the setting. Most employment settings have a job description for psychologists. This description can be used to provide a list of target behaviors to begin measuring and to compare with other observed behaviors.

In determining whether the observed performance is good or bad, Hatry's (1980) suggestions for performance comparisons provide guidelines to follow. The performance of one psychologist could be compared against the performance of another psychologist in the same setting. The performance of psychologists in a public setting could be compared with the performance of psychologists in a private setting. As stated previously, the observed behaviors of a psychologist could be compared with the job description for the position. After obtaining baseline data, one could also establish

some planned targets, implement a procedure, then compare obtained data with past baseline performance.

Several of Hatry's (1980) criteria for behavioral performance measures also appear to be applicable. Self recording of data by the psychologist and utilization of another employee already present for accuracy checks would eliminate the need to hire another person to observe the setting. Accuracy is obviously a critical factor as discussed by Johnston and Pennypacker (1980). Understandability is important since the backgrounds of management personnel may vary considerably. Results may have to be presented to managers who have very little formal education in addition to those who have extensive training in the behavioral sciences. Controllability of data collection is a prime factor since psychologists behave in relatively complex environments with many variables that could affect data collection. There are also dozens of duties and tasks that compete with data collection. The data collection procedure must be completed easily, rapidly and consistently on a daily basis with minimal disruption by uncontrolled environmental events.

The following research was conducted to study psychologists in the public sector. Several methodological issues were addressed such as 1) identification of behaviors appropriate to the setting; 2) comparison of behaviors by psychologists across subjects and settings; 3) identification

of target behaviors that needed to be increased or decreased; 4) implementation of procedures to effect behavior change. Measurement guidelines from cited research were used to pick which behaviors or products of behavior to measure and how to measure them. Methods from previous operant research such as informational feedback using graphic charts, goal setting, and arranging prompts for specific behaviors were utilizied as means of implementing a management by objectives system.

This study was completed in two distinct phases. Phase 1 consisted of a pilot study of psychologists working in several different settings. Phase 2 consisted of a more detailed and extensive study of psychologists working in a state hospital setting.

Phase 1 was conducted for several reasons. One reason was to identify the behaviors or classes of behaviors exhibited by psychologists working in different settings and the relative amount of time devoted to each behavior. This allowed comparison of the behaviors of state hospital psychologists with those of psychologists working in other settings. After this comparison was made, the experimenter used the comparative data to assist in identifying how state hospital psychologists may have been over- or under-utilized in particular duties. Another reason for conducting Phase 1 was to provide the opportunity to develop target behavior definitions, develop the recording techniques, and teach

subjects how to record data and chart in preparation for Phase 2. A third reason was simply to gain further data about how psychologists are utilized in various settings. Graduate schools typically teach students how to design experiments, write behavior programs, counsel patients or complete psychological evaluations. However, there are not much data available on the behaviors of psychologists after they leave graduate programs. Information is generally limited to demographic data such as average earnings and numbers of psychologists employed in various settings after they leave graduate programs.

Phase 2 was conducted to study how the utilization of state hospital psychologists might be altered. Phase 1 basically provided data that justified trying to alter the utilization of these psychologists by demonstrating how differently they were utilized in comparison with other settings. Particularly important was the relative lack of contact with patients. Phase 2 allowed several possible procedures to be implemented to identify what effects, if any, they might have on the behaviors of the state hospital psychologists.

CHAPTER II
METHOD

Subjects and Settings

Phase 1 subjects for this study were seven psychologists. Each psychologist had at least a Master of Args degree in psychology. Their educational backgrounds were similar. Each psychologist had completed a series of standard graduate courses including statistics, social psychology, personality theory, behavior modification, counseling techniques and psychological assessment. Each of the psychologists had been employed at least one year as a psychologist. Phase 2 subjects were the Phase 1 state hospital psychologists.

Phase 1 was completed in three different settings. One setting was an outpatient private psychiatric practice in a suburb of Chicago. Two psychologists were paid on a contingent fee for services basis. Fees were paid either by insurance companies or else by the patients themselves. The practice served predominantly middle class employed people and their families. The practice did include a few patients who were unemployed and receiving Public Aid payments or other forms of welfare. The practice offered a wide range of services including behavior management programs, psychological assessment, neuropsychological assessments, individual

and group therapy and pharmacotherapy. Each psychologist handled his or her own caseload of patients and occasionally consulted on cases assigned to other psychologists or psychiatrists. Consultations and other professional services were completed at the office of the practice.

The second setting was a unit in a private psychiatric hospital. Two psychologists were employed on a salary basis by a private psychiatric practice and were assigned to the unit. The unit was managed by the private psychiatric practice and served patients of the practice. The psychologists completed their duties at the hospital. Patients were billed according to an hourly fee structure for services provided by the psychologists. They, in turn, were paid a salary by the practice. A wide range of services was offered including individual and group therapy, family counseling, behavior management programs and consultations to schools, the courts, or other agencies. The unit contained 24 beds, though the number of patients actually admitted to the unit varied from week to week. Hospital and other fees were paid either by insurance companies or patients themselves. The hospital admitted only patients who could pay their own bills or those who had adequate insurance to cover the costs. Public Aid, Medicare and other sources of government payment were not accepted. Patients who relied on these forms of payment were not admitted to the unit.

The third setting was a state facility for the mentally retarded. Each psychologist was assigned to a separate administrative unit composed of 10 cottages, each of which housed approximately 10 long-term care residents. The psychologists were salaried according to the state department of personnel pay grades. The psychologists were under the direct supervision of a unit director. They were members of an inter-disciplinary team composed of one psychologist, a social worker, a physician, an educator and a recreation therapist. Most of the residents had resided in state facilities for several years. They were for the most part severely and profoundly retarded. Residents generally required behavior problem programs, basic education and elementary programs in areas such as self-help skills, social skills and communication skills. This setting was also utilized for Phase 2.

Target Behavior Definitions

The job description for each subject was used as the basis for preparing a data sheet to use during baseline except for those psychologists in private practice. There was no job description for these two psychologists.

The job description (position code 35603, 10/1/77) for the state hospital psychologists was in paragraph, narrative form. General duty areas included provision of therapy,

diagnosis, staff training, research and consulting to treatment teams. From the narrative description of a study area, more specific tasks were extracted such as "psychodiagnosis," "conducts counseling sessions," and "presents treatment recommendations." For the more specific areas, the author met with each psychologists to identify the individual tasks that would be considered part of the more specific task areas. For instance, "psychodiagnosis" might consist of administering I.Q. or other psychometric tests, directly observing a client's behavior, and interviewing direct care staff to complete a standardized behavior scale. These individual tasks were listed on the data sheet rather than the more general term such as "psychodiagnosis." The psychologists also reported numerous tasks such as attending a Human Rights Committee meeting or xeroxing that did not appear in the original job description. These tasks were also listed individually for data recording.

For the private hospital psychologists, their job description was not in narrative form. Instead, it had already been broken into specific tasks. Each task had been computer-coded for entry into the computerized billing system. The data sheet that the hospital already used was retained. The psychologists initially reported no other tasks that had to be completed other than those already on the computer form. The form did have an entry location for extraneous tasks that might occasionally occur. Since the data sheet

was comprehensive, it was retained and used with the private hospital psychologists.

For the private practice psychologists, the author interviewed each psychologist and discussed tasks completed. I compiled a list of tasks completed, at times using the job descriptions from the state hospital and the private hospital for task listings. If the private practice psychologists reported that they simply did not do a task that appeared in the job descriptions from the other settings, the task was left off their list.

The author had arranged to work for at least one month each as a psychologist in a state hospital, the private hospital and the private practice. This provided the opportunity for direct observation of the work environment and completion of many if not all the tasks the subjects would later complete. This allowed the author to check initial task definitions during or after having actually completed the tasks.

After completing the month of working each position, the author began working with each subject to refine the behavioral definitions. During this process, the author and each subject reviewed the definitions. The author then resolved any uncertainty about issues such as the precise beginning and end of a task, overlap between tasks or the possibility that another employee should actually do a task. The author resolved issues to the extent that there was

initial agreement between the subject and the author as to the beginning task definitions for data recording purposes.

In a situation where there was extensive ambiguity or overlap between tasks on the formal job description definition, the author tried to subdivide tasks to the point that overlap would be eliminated. It was generally possible to subdivide tasks so that a psychologist's behavior would not be recorded under two different task definitions so that daily time totals would not exceed 100% of paid time due to double entries. In situations where one subject might complete a task in a setting but another subject did not, the task was explained to the subject who did not have to complete it. For instance, one psychologist in the state hospital attended "Psychotropic Drug Committee" meetings. This committee existed only in his unit. An explanation of this task was given to the other state hospital psychologists for clarification. They were instructed to simply disregard tasks that they were not required to do in their respective units.

The final data sheet for each setting contained blank spaces for entry of extraneous tasks that might not have been listed. The author met weekly with each subject thereafter to collect data sheets. At these meetings, the author added or redefined tasks as needed and resolved any questions that arose regarding behavior definitions.

The specific behaviors or classes of behaviors to be recorded by each subject are shown in Tables 1, 2, 3, and Appendix 3. There were differences in the organization of the job descriptions and in some of the specific behaviors included. The job descriptions were not collapsed into one overall data sheet for all subjects since they were already responding under their own job descriptions in grievances, promotions and other administration situations. Changing the job description during baseline may have constituted a significant change in an independent variable that could have confounded these data.

Data Recording

Each psychologist timed his/her own behaviors on the job using a stopwatch or pocketwatch. Start and stop times for each behavior or class of behaviors were recorded so the duration of time present on each task could be computed. Data were obtained throughout the entire work shift including lunch breaks.

A new data sheet was begun each day. The author picked up the data sheets every week. During baseline, the subjects were not shown charts, were not given feedback about their own behaviors, nor were they given information about the performance of other subjects.

TABLE 1

Position Description: State Hospital
Salaried Psychologists

Initially Listed Duties	
Assessment	Psychological assessment (1) Complete diagnosis (1) Conduct psychotherapy (1) Conduct counseling-family (3) Prescribe therapy (3)
Therapy	Provide treatment recommendations (3) Establish unit treatment concepts (3) Develop data collection procedures (2) Making rounds (3) Instruct direct care staff in data collection (3)
Teaching	Train lower level staff (3)
Research	Complete psychological research (1) Act as research team leader (3) Develop research designs (2) Evaluate research findings (2) Prepare research reports (2)
Consultant	Advise management on programs (3) Provide advice on programming (3) Consult with several treatment teams (3)
Unlisted Observed Duties	
	Read staffings, injury reports, program reviews (2) Escort patient, pick-up equipment (4) Review Admissions Book (2) Xeroxing (2) Write discharge summary (2) Make family phone calls (3) Initial interview/social history (2) Chart progress notes (2) Direct behavioral observation (1) Write evaluation report (2) Write staffing report (2) Typing (2)

TABLE 1 (continued)

Write behavioral program (2)
Attend administrative meeting (3)
Fill in behavioral scale (2)
Review equipment catalogs (4)
Learn/operate computer program (4)

KEY: Patient Contact (1)
Paperwork (2)
Third Party Contact (3)
Miscellaneous Job Related (4)

TABLE 2

Position Description: Private Hospital
Salaried Psychologists

Billable Time

Psychologists initial interview and evaluation (1)
- History
- Mental status
- Disposition of the case

Individual therapy (1)
- Behavior modification
- Insight-oriented therapy
- Diagnostic
- Supportive therapy

Consultation for evaluation of another doctor's patient (1)

Family therapy with patient (1)

Family therapy without patient (3)

Multi-family group therapy (1)

Group psychotherapy (1)

Telephone consultation with or about patient for psychotherapeutic or diagnostic purposes (3)

Environmental intervention on behalf of patient with agency, employer or institution (3)

Interpretation or explanation of results of examination or procedures to family (3)

Preparation of report on patient's status, history, treatment or progress for other doctors, agencies, or insurance carriers (2)

Hospital discharge day management (2)

Psychological testing (1)

Diagnostic interview (1)

Testing (1)

Supervision of testing (3)

Report writing (2)

Hypnotherapy (1)

Consulting services patient related (3)

TABLE 2 (continued)

Patient Related Non-Billable

Telephone consultation with patient/family for psychotherapeutic or diagnostic purposes (1)

Contact with outside agencies concerning patient and on patient's behalf (3)

Completion of reports for outside agencies concerning patient and on patient's behalf (2)

Attend court hearing, school conferences, etc., for patient (3)

Travel time related to a patient (4)

Other services for a patient (1, 4)

Telephone intakes (1, 3)

Initial meeting with patient/family not billable (1)

Progress notes, updating patient records (2)

Administrative and Miscellaneous: Salaried Not Billable

Complete records for others, not patient related (2)

Travel time not patient related (4)

Meetings, conferences with staff (3)

Supervision of hospital staff (3)

Training seminars - on site (3)

Training seminars - other locations (3)

Meeting with referral sources (3)

Staff meeting (3)

Completion of paperwork required for billing (2)

Decision making, administrative tasks (3)

Miscellaneous

KEY: Direct Patient Contact (1)
Paperwork (2)
Third Party Contact (3)

TABLE 3

Derived Position Description:
Private Practice Psychologists

Billable Time

Intake interview (1)
Individual therapy (1)
Group therapy (1)
Family therapy with patient (1)
Family therapy without patient (3)
Psychological testing (1)
Psychological report writing (2)
Writing behavioral program (2)
Court hearing (3)

Nonbillable Time

Writing progress notes (2)
Letter to agency, employers, etc. (2)
Court report (2)
Phone calls to family, agencies, etc. (3)
Conferring with other staff on care (3)
Direct contact with residential facility staff (3)
Work on program proposals (2)
Dictations (2)
Xerox (2)

KEY: Direct Patient Contact (1)
Paperwork (2)
Third Party Contact (3)

Choice of Duration Measurements

The psychologists in both hospital settings exhibited behaviors or produced response products that could be counted. For instance, one could have counted psychological reports, staffing plans, program reviews, written programs, meetings attended and treatment plans. However, the various hospital regulations and unit census dictated the number of such products to be completed per month or per year. A psychologists serving a unit of 90 residents had to complete 90 psychological reports per year, 90 program reviews per month, attend 90 staff meetings per year, and so on. The numbers per time period were fixed and inflexible. As such, the time spent on such tasks could vary considerably though the actual number of tasks or products was fixed. Duration measures were chosen due to the variation that could occur in these measures.

Materials and Apparatus

The lists of behaviors derived from the job descriptions were quite lengthy. This comprehensiveness was needed to allow for a multitude of different behaviors that might normally occur in the course of a working day. The behaviors were entered on 8½ x 11 sheets of paper with spaces for entering data. The data sheets could be folded and carried in a shirt pocket or purse. The subject could enter data immediately without having to return to the office or wait

until the end of the day. Subjects were instructed to record immediately to prevent forgetting, rushing at the end of the day, entering incorrect times or other errors in data recording. The data sheet did present the possibility of reactivity of self-recording, and did provide a form of informational feedback during the day. These possible confounding variables were considered in reviewing baseline data before entering an experimental phase.

Training in Accurate Observation

Each subject was instructed in how to self-record his or her own behavior by recording start and stop times for the appropriate categories. An additional procedure was completed prior to actual data collection to improve the accuracy of observations. Thornton and Zorich (1980) conducted a study that demonstrated a method to increase the accuracy with which observers record behavior. This method basically consisted of a brief training session dealing with several systematic errors of observation described by Campbell (1958). These types of errors tend to be constant and non-random defects that human observers introduce into the data when duplicating, transmitting or translating information from an input source into an output source. The eight systematic errors discussed were 1) loss of detail through simplification; 2) over-dependence on the single source; 3) middle message loss; 4) categorization error;

5) contamination from prior information; 6) contextual errors; 7) prejudice and stereotyping; and 8) halo effect. After discussing and explaining the types of systematic errors, the experimenter gave each subject a reference sheet that also listed the types of errors and their descriptions for referral during data collection. (It should be noted that each of the subjects had had a previous statistics or behavioral observation course.)

Interobserver Agreement

An interobserver agreement system was arranged for each subject prior to data collection. The system basically involved having another observer who was present during portions of the data collection also record start and stop times. The psychologists generally functioned in the presence of either another professional person, such as a social worker, or office staff during the work day. Another person who was routinely present was recruited to assist in data collection.

For the psychologists in the state hospital setting, another member of the professional team served as a second observer. For instance, each psychologist shared his or her office with another professional, such as a social worker or a speech and hearing pathologist. For work completed in the office itself such as writing reports, the other person was requested to write down start and stop times that he or

she observed the psychologist engaged in a task. For activities such as meetings, another psychologist would be present and either initial or write down the start and stop times. The other professionals who served as observers had worked with the psychologists for at least several months. They had become fairly familiar with the job duties of the psychologists through their previous work experiences.

For the private practice psychologists and private hospital psychologists, an office secretary or business manager routinely entered times allocated to billable activities in account sheets. These observers had worked in the settings for several years. They had become very familiar with the job tasks completed by the psychologists by working with computer billing, bookkeeping and office practices that required them to record and/or enter tasks completed by the psychologists. Even though the second observers were already familiar with job tasks, the task definitions and data sheets were reviewed with them. Any questions were answered or differences resolved over task definitions and data recording procedures. The observers were utilized in noting times that the psychologist began and ended a session, went into a family therapy session, completed a testing, or other activity in the office. The minutes entered by the psychologists and the corresponding sample entries by other observers are presented in Appendix I and II.

For the private hospital setting, continuous observation by a second observer was possible since the second observer had to record for computer billing anyway. This allowed continuous interobserver agreement checks. For the private practice setting, continuous second observer recording for billable tasks was possible since the business manager or one of the secretaries had to enter billings. The business manager also served as second observer for nonbillable tasks such as writing progress notes.

Issues related to accuracy and interobserver agreement. Johnston and Pennypacker (1980) discussed issues related to accuracy and observation by human subjects. With respect to this study, several issues were considered regarding accuracy and observation. One issue was that the meetings between psychologists and patients in the private hospital and private pactice settings were held in rooms out of direct line of vision of the second observer, though the observer could see subjects enter and leave the rooms with patients after they had checked in with the secretaries prior to therapy sessions. One could consider that since the observer did not actually see the complete session or contact between psychologist and patient, one could not be absolutely certain that the psychologist actually conducted a therapy session as indicated. There was the possibility that he might have been discussing extraneous issues or topics rather than actually being engaged in a family therapy or

other therapeutic activity. There was auditing done by insurance companies from time to time that might limit cheating by psychologists on billable time. Patients also had to pay a portion of the billable time under insurance policies that did not pay 100% of billed charges. The patients themselves could also tend to discourage inflated times entered for billing, and help keep the psychologists "honest" in their entries for therapy or other professional tasks completed. It would have been possible to use tape recording or other machine-assisted means of checking the accuracy of observations. This would have required obtaining permission to do so from each patient, and would have required rather large amounts of time for reviewing each tape. As such, machine-assisted recording was not utilized.

For many tasks such as psychological evaluations and progress notes, there were observable response products such as reports or entries on records kept in patient charts. In all settings, such response products were already observed and audited by outside parties such as insurance auditors or accreditation inspectors. These response products did not contain the specific duration of time consumed in preparing the report, completing the test or writing the note. However, these products could be used to help verify that a task was in fact completed as claimed by the psychologist.

Using second observers who were already familiar with the duties of the psychologists was a tactic chosen to help

reduce the amount of time and difficulties encountered in training second observers. Observers naive to the setting would have required rather large amounts of time to familiarize with each of the tasks the psychologists might conceivably complete. By using observers who had worked in the settings for at least several months, much of the work of training and calibrating observers was minimized since the observers had already had practice in recording many of the target behaviors. They basically knew the procedures involved in writing progress notes, preparing annual staffing plans, psychological testing, and other routine tasks. There was also a control method on some observers through their employment. The secretaries and business manager were required to keep accurate records as part of their employment. Inflating time spent in various billable tasks may have been identified by insurance company auditors. Recording inaccurately low amounts of time spent on billable tasks could result in retribution from either the psychologists or administrative staff such as the clinical director. As such, there were some environmental conditions that could aid in increasing the accuracy of recording by some of the second observers. The precise effects of these conditions were not identified though their presence may have had some effect.

Design

A baseline and three phase changes were used to study the effects of independent variables on the behaviors of the psychologists working in the state hospital setting.

Phase 1. Baselines were obtained on the behaviors of all psychologists in each of the settings for two weeks. Psychologists recorded the amount of time spent in each of the various duties assigned to them. After baseline data were collected, behaviors of the state hospital psychologists were compared with the behaviors of the psychologists working in other settings. These results suggested the need for increasing direct patient contact and decreasing the amount of unaccounted time.

Phase 2. The interventions consisted of various methods of implementing a management-by-objectives approach to changing behaviors of state hospital psychologists. Mangement-by-objectives has been advocated extensively in behavioral management literature (Deitzer, Shillif, and Jucius, 1979; Hughes, 1965; Odiorne, 1973). The actual procedures used to implement this approach have varied widely from setting to setting, though the procedure of simply setting an objective may be similar across settings. The interventions used in ths study involved self-scheduling, self-charting of data, and individual task time objectives. The interventions were chosen to increase the

similarity between the environments of the public and private sector settings (scheduling patient contact time), or to add environmental manipulations that were used in other organizational settings (self-charting).

Prior to implementing the intervention procedures, a general objective for direct patient contact was established. The general objective was to increase patient contact to a daily amount of 150 minutes which was 33% of available work time. The state hospital psychologists had to attend a variety of program reviews and other staff meetings that could not be eliminated. These meetings and some other duties appeared to preclude the psychologists from ever spending the same amounts of time in direct patient contact as their counterparts in the private sector. The general objective of 150 minutes per day represented a realistic objective that was a considerable increase over baseline levels.

During the first intervention, each psychologist scheduled his time to include periods of direct patient contact. The psychologist was given blank weekly schedules similar to appointment book pages on which to plan specific times for daily direct patient contact for the duration of the phase. Each time slot was to be allocated to a specific patient, also scheduled in advance. The psychologist was then to follow the planned schedule. This procedure approximated the appointment system in private practice and private hospital settings.

During the second intervention, each psychologist implemented a self-charting procedure. A semi-logarithmic chart for direct patient contact, paperwork, and third party contact was prepared for each psychologist. A line was entered on the chart corresponding to the objective for direct patient contact. Each psychologist tallied and charted the amount of direct patient contact at the end of each working day. Charts were to be displayed on the office wall where the psychologist could see them during the day.

During the third intervention, individual time objectives were established for each of several non-direct patient contact tasks required of the psychologists. Baseline data were reviewed with each psychologist for all major tasks such as attending program review meetings, administrative meetings, writing psychological reports, and writing staffing plans. The objectives established for the tasks represented approximately 33% reduction in time spent on each duty during baseline. The objective for each task was entered at the top of columnar accounting paper. The psychologist then totaled the time spent on each duty daily and entered the time in the appropriate column under the objective. This procedure functionally maintained the general objective for direct patient contact, and established objectives for each individual task including paperwork and third party contact duties.

Phase Durations and Changes

Baselines were recorded on the behaviors of the state hospital psychologists for at least two weeks. Scheduling of patient contact was then implemented for Subjects 1 and 2 while baseline conditions were continued with the other two psychologists for another week. Subjects 3 and 4 began scheduling a week later.

The phase of self-charting was implemented after Subjects 3 and 4 had completed a week of scheduling. Subjects 1 and 2 implemented self-charting for one week, then Subjects 3 and 4 began self-charting.

The phase of individual task objectives was implemented after Subjects 3 and 4 had completed a week of self-charting. Subjects 1 and 2 implemented individual task objectives for one week, then Subjects 3 and 4 also implemented these objectives.

In summary, Subjects 1 and 2 completed a two week baseline while Subjects 3 and 4 completed a three week baseline. The subsequent phases lasted two weeks each for all subjects. (Subject 4 changed job locations to a different facility and was terminated after the scheduling procedure was completed.) Each phase procedure was terminated prior to beginning the next phase so procedures were not cumulative. The following time line represents the sequence and durations of phases for each subject during Phase 2.

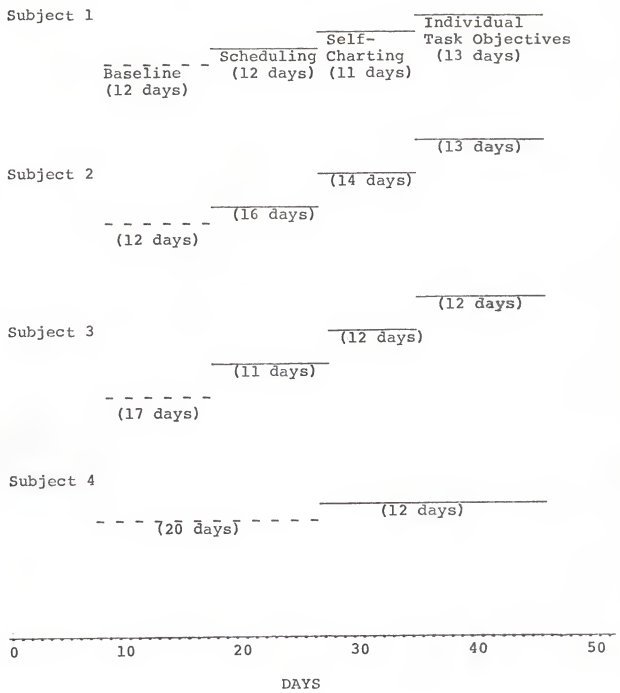


Figure 1. Timelines for phase changes.

Constraints on phase lengths and independent variables. The subjects had all agreed to participate in the study for a limited length of time. As such, the experimenter was limited in the number of independent variables that could be manipulated and the length. Ideally in such a study, there would be no limit on the number of days subjects would participate. This would allow any number of different procedures to be implemented and phase length to be extended to determine longer term effects of each of the manipulations. One could also try various combinations of procedures to identify relative effects on responding.

Statistical Analyses

During Phase 2, Kappa (K) values were computed for each intervention for data from each state hospital psychologist. The K value for each intervention indicates the effect of the intervention on variability in responding by each subject (Johnston and Pennypacker, 1980). The theoretical lower limit of K is one, indicating no change in variability. Higher values indicate greater variability. A change in variability between baseline and an intervention is indicated by the ratio: $\frac{\text{Intervention K}}{\text{Baseline K}}$. The K value for baseline serves as the reference value against which an intervention K value is compared for each subject. As indicated by Johnston and Pennypacker (1980), further application of K in various experimental contexts is needed to identify the

degree to which a ratio must deviate in either direction from one for the change in variability to be considered meaningful. Computed values of K for each subject, intervention and general class of behavior (direct contact, paperwork and third-party contact) were calculated along with the ratios of $\frac{\text{Intervention K}}{\text{Baseline K}}$.

A trend analysis was also conducted using the C statistic advocated by Tryon (1982) for time-series analysis of single-subject data. This analysis was applied to direct patient contact data for each phase to help evaluate whether there was a trend in the data prior to beginning a new phase. A second application between succeeding pairs of phases was completed to help identify if a treatment phase departed from the trend set in the previous phase. The question addressed by the C statistic is whether the time series involves any systematic departures from random variation, i.e., a trend. The C statistical analyses were completed for direct patient contact data since this category was specifically targeted for increase.

Data charts. Data were plotted on semilogarithmic charts throughout the second phase of the study. Duration measures were plotted on an inverted Y-axis. The top of the chart contains the one-minute line. Data points at the one-minute line represent a duration less than 60 seconds. The Y-axis can theoretically increase to 1440 minutes though the maximum duration possible in this study was 450 minutes per day of

paid time for the psychologists. Data points are plotted further below the one-minute line as durations approach 450 minutes.

CHAPTER 3
RESULTS

Phase 1 Results

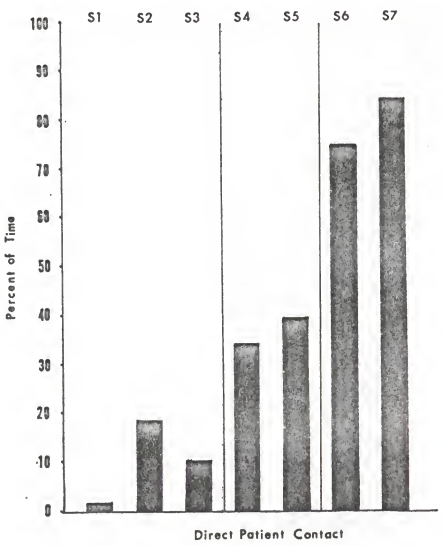
Behaviors observed were categorized into direct patient contact, paperwork and third party contact. The individual duties that were allocated to each of these three categories are presented in Tables 1, 2 and 3 for the state hospital, private hospital and private practice psychologists.

Figures 2 and 3 are bar graphs of the percent of time allocated to direct patient contact, paperwork, third party contact, and unaccounted time. In the state hospital setting, psychologists allocated from 2 to 18% of their time in direct patient contact. Private hospital psychologists spent 34% and 39% of their time in direct patient contact. The private practice psychologists spent 75% and 85% of their time in direct patient contact. The paperwork chart indicates that state hospital psychologists spent from 29 to 44% of their time in paperwork. Private hospital psychologists spend 2 to 10% of their time in paperwork.

The third party contact graph indicates that the state hospital psychologists spent from 26 to 50% of their time in these activities. The private hospital psychologists spent 51 to 54% of their time in third party contact. By

Figure 2. Bar graph of the percent of time allocated to direct patient contact and paperwork, during Phase 1.

S1,2,3 State Hospital S4,5 Private Hospital S6,7 Private Practise



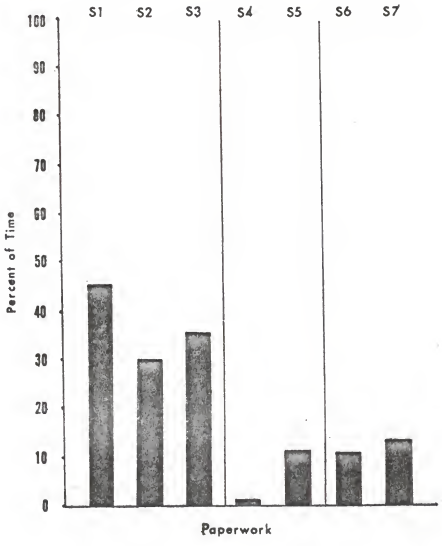
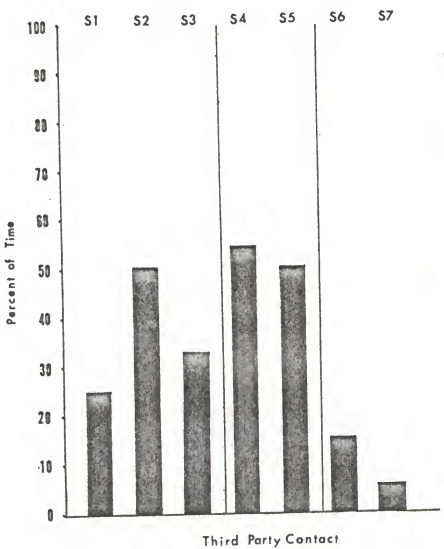
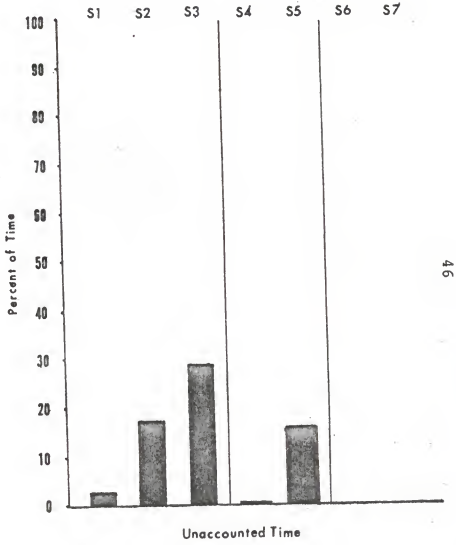


Figure 3. Bar graph of the percent of time allocated to third party contact and unaccounted time during Phase 1.

S1,2,3 State Hospital S4,5 Private Hospital S6,7 Private Practise





comparison, the private practice psychologists spent 4 to 15% of their time in third party contact.

There was considerable variability in the unaccounted time category. About 3% of the paid time was unaccounted for by the first state psychologist. The second state psychologist had 17% of paid time unaccounted for. The third state psychologist had approximately 28% of paid time unaccounted for. The private hospital psychologists had 0 to 10% of their time unaccounted for. The private practice psychologists did not have this particular category, since they were not paid on a salary schedule and therefore were not required to work a specific amount of time per day.

In summary, state hospital psychologists spent comparatively little time in direct patient contact and large proportions of time in paperwork. Unaccounted time could consume rather large proportions of paid time. These data generally provided justification for increasing direct patient contact and controlling unaccounted time by state hospital psychologists.

Phase 2 Results

Baseline. Table 4 indicates that only Subject 1 achieved or exceeded 150 minutes direct patient contact with any consistency. She achieved 150 mintues direct patient contact on seven of 12 days. The others achieved this goal on one third or less of the days.

TABLE 4

Days Goal of 150 Minutes Direct Patient Contact was Achieved by Subjects during each Phase

	S_1	%	S_2	%	S_3	%	S_4	%	Phase Totals	
Baseline	7/12	58%	2/12	17%	6/17	35%	4/20	20%	19/61	31%
Scheduling	2/12	17%	2/16	12%	0/11	0%	2/12	17%	6/51	12%
Self-charting	5/11	45%	6/14	43%	3/12	25%			14/37	38%
Task Objectives	7/10	70%	10/13	77%	2/12	17%			19/35	54%

S_n refers to Subjects 1, 2, 3, and 4

% refers to percentage of days in which the goal of 150 minutes per day direct patient was achieved

Computed K values during the baseline portion of Phase 2 generally indicated highly variable direct patient contact and paperwork time. The direct patient contact K values in Table 5 were seven or above for all subjects except Subject 1, whose K value was 4.13. Paperwork was more variable for Subjects 1 and 3 (K values of 11.0 and 7.7) than Subjects 2 and 4 whose K values of 2.03 and 1.63 indicated more constancy.

Third party contact was much less variable on the whole. Subjects 1, 2, and 3 had K values of 3.45, 1.68 and 2.50 respectively. Subject 4 exhibited a higher K value though average daily contact was similar to the other subjects.

The daily average amounts of time spent in various categories are presented in Table 6. Only Subject 1 approached the goal of 33% of time spent in direct patient contact across the whole baseline. Paperwork consumed two to three hours per day for all subjects except Subject 1,who reported about one hour of paperwork per day.

Trend Analysis Prior to Changing Phases

Table 7 contains computed values for C-statistics for all subjects in all phases for direct patient contact. The C-statistics were computed for this category since this category was directly targeted for change. There was no significant trend indicated in baseline for any subjects for direct patient contact prior to implementing scheduling of patient contact. No significant trends were apparent prior to switching to successive phases, either.

TABLE 5

Kappa Values and Ratios Calculated for All Subjects and Phases

	Direct Contact	Ratio	Paper-work	Ratio	Third Party Contact	Ratio
Subject 1						
Baseline	4.13		11.00		3.45	
Scheduling	6.90	1.67	10.30	.94	4.95	1.43
Self-Charting	7.02	1.02	3.63	.35	5.05	1.02
Duty Objectives	3.74	.53	3.74	.49	13.70	2.70
Subject 2						
Baseline	7.38		2.03		1.68	
Scheduling	18.19	2.46	8.90	4.38	1.87	1.11
Self-Charting	1.99	.11	3.60	.40	6.68	3.58
Duty Objectives	2.97	1.49	3.16	.88	5.53	.83
Subject 3						
Baseline	7.25		7.70		2.50	
Scheduling	9.47	1.31	2.29	.30	8.90	3.56
Self-Charting	3.52	.37	13.40	5.85	23.00	2.58
Duty Objectives	11.06	3.14	7.40	.55	13.80	.60
Subject 4						
Baseline	7.00				7.00	
Scheduling	1.91	.27		.88	13.00	1.86
Self-Charting						
Duty Objectives						

TABLE 6

Daily Averages of Time Spent in Each Class of Behavior Calculated for each Subject and Intervention

	Direct Contact	Paperwork	Third Party Contact	Unaccounted Time
Subject 1				
Baseline	147	53	151	58
Scheduling	90	55	167	63
Self-Charting	119	78	135	88
Task Objectives	149	79	116	52
Subject 2				
Baseline	73	155	182	22
Scheduling	65	91	199	26
Self-Charting	143	123	121	38
Task Objectives	192	101	129	16
Subject 3				
Baseline	115	108	125	78
Scheduling	37	176	131	82
Self-Charting	121	136	145	64
Task Objectives	107	200	77	46
Subject 4				
Baseline	98	177	159	17
Scheduling	101	241	95	12
Self-Charting				
Task Objectives				

TABLE 7

Z-Scores of C-Statistic Calculated Within Phase as an Analysis of Trend in the Data Prior to Changing-Phases for Direct Patient Contact Data

	Baseline	Scheduling	Self-Chart	Duty Objectives
Subject 1	1.44ns	.08ns	.04ns	n/a
Subject 2	.86ns	.59ns	.07ns	n/a
Subject 3	.69ns	.36ns	1.25ns	n/a
Subject 4	.46ns	.98ns	n/a	n/a

**p<.05

Scheduling Direct Patient Contact

Scheduling direct patient contact generally did not increase direct patient contact but did appear to increase variability. Subject 2 reached the 150 minute objective only four of 12 days and the others did not exceed two of 12 days. Variability in daily patient contact increased considerably for all subjects except Subject 4, whose K value and ratio decreased (1.91 and .27).

Scheduling direct patient contact had mixed effects on variability of paperwork time and third party contact. Variability of paperwork increased for Subject 2 and decreased for Subjects 1, 3, and 4. Subjects 1, 3, and 4 exhibited increased variability in third party contact with K ratios of 1.43, 3.56, and 1.86.

There was a significant change of trend in the data after switching from baseline to scheduling direct patient contact. Visual observation of Figure 3 suggests that direct patient contact decreased considerably. Computed C values between baseline and scheduling were significant for Subjects 1, 2, and 4, and confirm visual chart observation. Subject 3 exhibited no significant trend change, as indicated in Table 8.

Self-Charting

Self-charting did appear to increase direct patient contact from the preceding phase. Visual inspection of Figure 4

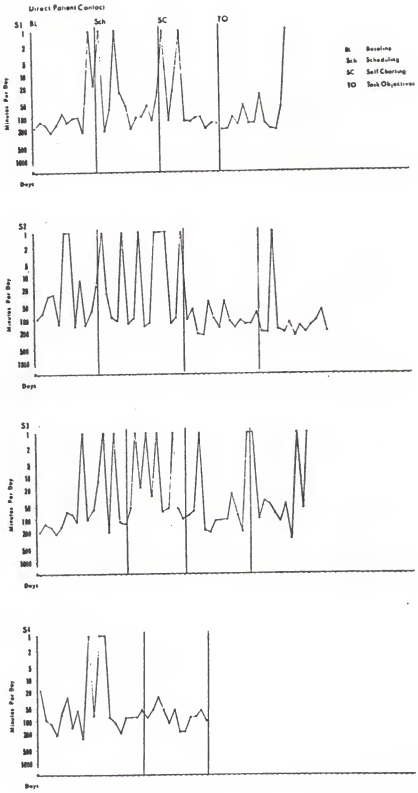
TABLE 8

Z-Scores of C-Statistic Calculated between Phases as an Analysis of Trend in the Data after Changing Phases for Direct Patient Contact Data

	Baseline/ Schedule	Schedule/ Self-Chart	Self-Chart Duty Objectives
Subject 1	3.02**	10.70**	.50ns
Subject 2	1.74**	.55ns	2.00**
Subject 3	.90ns	21.00**	.80ns
Subject 4	3.38**		

** $p < .05$

Figure 4. Semilogarithmic graph of time spent in daily direct patient contact during Phase 2 interventions.


Direct Patient Contact
S1
BL
Sch
SC
TO
BL Baseline
Sch Scheduling
SC Self Charting
TO Task Objectives
Minutes Per Day
Days
S2
Minutes Per Day
Days
S3
Minutes Per Day
Days
S4
Minutes Per Day
Days

suggests that self-charting increased direct patient contact for Subjects 2 and 3. All three remaining subjects increased the proportion of days the goal was achieved, particularly Subjects 1 and 2. These subjects achieved the goal on almost half the days as indicated in Table 4. The trend analysis in Table 8 indicated significant C values for Subjects 1 and 3. The K ratios in Table 5 suggested a decrease in variability of responding by Subjects 2 and 3 (.11 and .37), while variability for Subject 1 did not change (1.02).

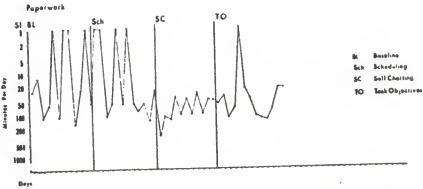
The effects of self-charting on paperwork were mixed. Visual inspection of Figure 5 suggests that paperwork by Subjects 1 and 2 increased and stabilized. The K ratios in Table 5 indicated that paperwork responding decreased in variability for Subjects 1 and 2 (.35 and .40). Subject 3 appeared to decrease time spent on paperwork but variability increased considerably with a K ratio of 5.85.

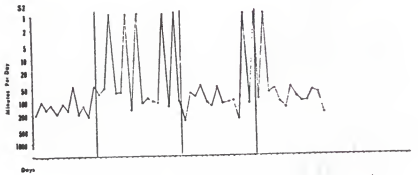
Third party contact appeared to decrease somewhat across this phase by Subjects 1, 2, and 3 in Figure 6. The K ratios suggested pronounced increases in variability by Subjects 2 and 3 (3.58 and 2.58) while Subject 1 was relatively unchanged (1.02).

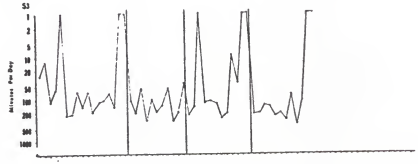
Task Objectives

Setting time objectives for specific tasks (Table 9) appeared to increase direct patient contact for Subjects 1 and 2 of Figure 4. Table 4 also indicates pronounced increases

Figure 5. Semilogarithmic graph of time spent in daily paperwork during Phase 2 interventions.


Paperwork
S1
BL
Sch
SC
TO
Minutes Per Day
Days
BL Baseline
Sch Scheduling
SC Self Charting
TO Task Objectives


S2
Minutes Per Day
Days


S3
Minutes Per Day
Days

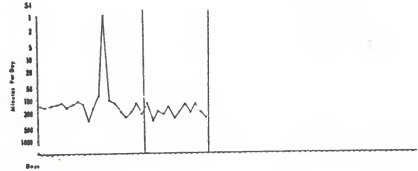

S4
Minutes Per Day
Days

Figure 6. Semilogarithmic graph of time spent in daily third party contact during Phase 2 interventions.

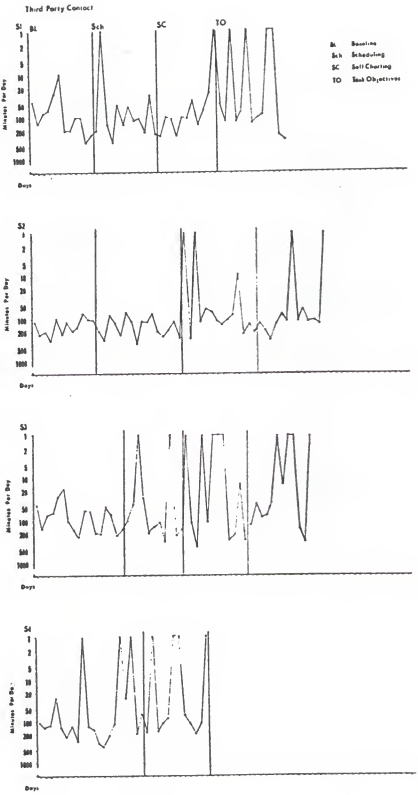

Third Party Contact
S1
S2
S3
S4
BL
Sch
SC
TO
BL Baseline
Sch Scheduling
SC Self Charting
TO Task Objectives
Minutes Per Day
Days

TABLE 9

Individual Task Objectives During Phase 2

	Subject 1 Minutes	Subject 2 Minutes	Subject 3 Minutes
Write behavior program	38	31	67
Write psychological report	42	38	45
DMH 30 form	46	36	46
Write staffing plan	36	36	70
Xerox, filing, etc.	16	19	178
Program review meeting	33	73	35
Habilitation plan meeting	126	69	101
Behavior Management Committee	67	202*	147
Human Rights Committee	45	133*	39
Community agency meeting	21	32	50
Professional staff meeting	28	60	21
Family conference	18	42	15
Psychological testing	42	46	45
Unaccounted time	30	30	30
Psychotropic Drug Committee	n/a	n/a	49**

* Attends all unit meetings

** Only done in unit of Subject 3

in the number of days these two subjects reached the goal for direct patient contact. The goal was reached on seven of 10 days by Subject 1, and 10 of 13 days by Subject 2. The K ratios suggest an increase in variability of responding by Subjects 2 and 3 (1.49 and 3.14) while Subject 1 decreased in variability (.53).

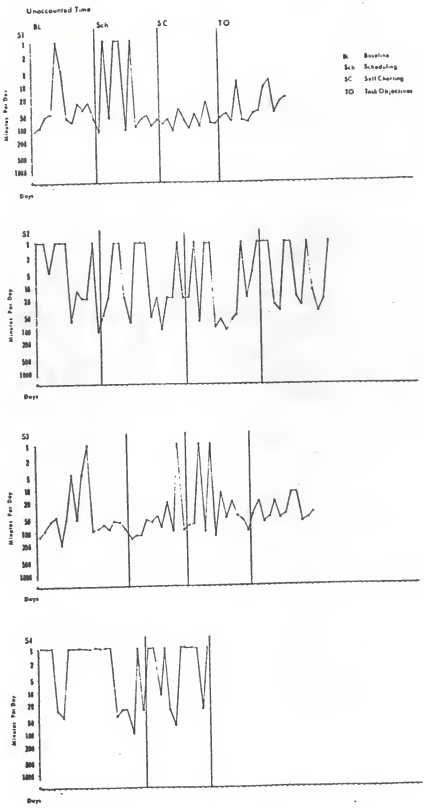
Visual inspection of Figure 5 indicates minimal effects on paperwork time by Subjects 1 and 2. Subject 3 appeared to increase considerably. The K ratios suggested the Subjects 1 and 3 decreased in variability (.49 and .55) while Subject 2 remained essentially unchanged.

Subject 1 appeared to decrease third party contact while Subjects 2 and 3 remained unchanged in Figure 6. Variability in responding by Subject 1 increased with a K ratio of 2.7. Subjects 2 and 3 decreased in variability with K ratios of .83 and .6 respectively.

Unaccounted Time

Table 6 contains daily averages of unaccounted time for each subject and intervention, and Figure 7 is a semi-logarithmic chart of unaccounted time. This category comprised a significant portion of each day for Subjects 1 and 3, who spent an hour or more daily in unaccounted time. Their unaccounted times remained high, except Subject 3 whose unaccounted time decreased considerably during the Task Objectives phase. Subjects 2 and 4 were generally able to

Figure 7. Daily unaccounted time during Phase 2 interventions.


Unaccounted Time
BL
Sch
SC
TO
S1
S2
S3
S4
Minutes Per Day
Days
BL Baseline
Sch Scheduling
SC Self Clearing
TO Task Objectives

limit unaccounted time to 30 minutes per day or less. This was the objective eventually set for all subjects during the Task Objectives phase.

The $\underline{K}$ values and $\underline{K}$ ratios for unaccounted time appear in Table 10. This category was highly variable for subjects as indicated by the wide range in $\underline{K}$ values. Providing a specific task objective decreased variability for Subjects 1, 2, and 3 over most of the preceding interventions. Self-charting also decreased variability of unaccounted time for Subject 1, with a $\underline{K}$ ratio of .17.

TABLE 10

K-Values and K-Ratios Computed across Subjects and Interventions for Unaccounted Time

	Subject 1	Ratio	Subject 2	Ratio	Subject 3	Ratio	Subject 4	Ratio
Baseline	3.97		8.10		3.63			
Scheduling	9.97	2.51	7.39	.91	3.97	1.09	6.36	
Self-Charting	1.71	.17	9.97	1.35	8.90	2.24	5.69	.89
Task-Objectives	2.34	1.37	6.68	.67	2.03	.23		

CHAPTER 4
DISCUSSION

Phase 1 Discussion

Results of Phase 1 of this study demonstrated marked differences in the utilization of psychologists between the state hospital and both private settings. The state hospital setting allowed rather large blocks of time to be lost due to activities not within the realm of legitimate job duties. These large amounts of unaccounted time were lost to the patients who depended on the psychologists for services. There was also comparatively little time spent in direct patient contact by state hospital psychologists. Though the state hospital psychologists might not be maximally utilized in providing traditional individual or group "psychotherapy" to retarded clients, they could directly observe patients to verify behaviors reported by direct care staff. They could also work directly with patients during the process of developing a behavioral change program for the habilitation plan.

The state hospital setting also allowed for marked differences in the amounts of time spent on the same duties by different psychologists. For instance, Subjects 1 and 2 spent an average of less than 50 minutes to write a behavioral

program while Subject 3 averaged over 87 minutes per program during baseline. Subjects 1 and 3 averaged 45 minutes or less per program review meeting while Subject 2 averaged 94 minutes per meeting during baseline. Likewise, there was little consistency or uniformity in time spent on various tasks by each subject. A task that required 15 minutes one time might require 45 minutes the next time it was completed.

Consistency and uniformity of time spent on a given task is not inherently desirable. A patient with one type of behavior problem might legitimately require more time than a patient with a different type of behavior problem. Likewise, inexperienced staff might require more time to train than experienced staff for any particular behavioral program. However, the fluctuations observed in the data could not necessarily be accounted for by these types of variables. There simply appeared to be little structure and organization in the state hospital system for gaining consistent control over the behaviors of the psychologists.

A variety of unidentified variables could conceivably affect the psychologists' behaviors in many different ways in an unsystematic fashion. The state hospital environment differed considerably from many industrial settings where cost accounting procedures have been utilized to provide behavioral standards of time allocation and follow-up control procedures. The state hospital environment could be

arranged to utilize cost accounting procedures, particularly since the psychologists produced many tangible products such as written reports. They were also very visible in meetings even where tangible items were not produced. Mechanical devices such as tape recorders or videotape recorders could be utilized in monitoring psychologists' behaviors. Data such as those obtained in Phase 1 of this study suggest the need for further study of psychologists, or other professionals in the state hospital setting.

Phase 2 Discussion

Results of Phase 2 indicated that procedures such as scheduling time, self-charting and providing specific task objectives allowed only marginal control over behaviors at best. Self-charting appeared to provide some increase in consistency of direct patient contact by two subjects, but not by the third subject. Individual task objectives provided only marginal control over direct patient contact by the first and third subjects. As such, none of the procedures alone could be relied upon to provide the degree of control over behaviors necessary to consistently achieve a specific time objective for a class of behaviors, should one choose to set such a standard. The fact that such wide variability in responding occurred suggests that the state hospital environment should be studied more closely to identify the variables that are involved in such fluctuations in behavior.

The planners of the system apparently intended for considerable direct patient contact as evidenced in the job description. The current state hospital environment was not structured to produce such responding with any consistency.

The variables involved in the response fluctuations might reside in the histories of the subjects. There may be particular histories that result in psychologists who choose to work in a state hospital environment rather than a private setting. The behaviors of these people might change considerably should they be placed in a private practice or private hospital setting. Likewise, their behaviors might continue to be similar to those exhibited in the state hospital.

Certain aspects of the private hospital and private practice settings might account for the differences in behaviors exhibited by psychologists in these settings. In the private hospital setting, there was already in existence a relatively refined data collection system. The state hospital setting had no such system. The private hospital and private practice settings were also dependent on direct patient or third party contact for billings. Insurance companies would not reinburse for time spent in paperwork or unaccounted time. Funding in the state hospital was not contingent on any particular behaviors by the psychologists. There was no real relation between funding and direct patient or third party contact in the state hospital. Also, the state hospital

psychologists were relatively well insulated from any consequences such as suspension or termination for lack of direct patient contact. On the other hand, the private practice and private hospital psychologists did not have the protection of written personnel codes or union contracts. They could be suspended or terminated much more easily than the state hospital psychologists. The private practice and private hospital settings also had some basic guidelines established for many of the duties. Individual and group therapy was generally conducted in 50 minutes blocks of time, and there were some guidelines as to how often these were to be held. Billings for psychological evaluations were anchored to estimated times necessary for completing particular tasks. Spending more time on these tasks did not necessarily produce more income for either the hospital or the psychologists. Instead, less time would be left for another task that might be billable time. One might consider inserting some of the contingencies of the private settings into the state hospital environment should greater control over psychologists' behaviors be desired.

Use of the C-Statistic

The C-statistic did appear to provide some indication of the presence or absence of a trend or a change in trend in data during a phase. However, it does appear that the C-statistic might be misleading at times. For instance, the

semi-logarithmic chart in Figure 4 for direct patient contact by Subject 2 suggests a pronounced decrease in variability and a large increase in direct patient contact after switching from scheduling to self-charting. The C-statistic was nonsignificant for these two phases. One might be misled into believing there was no change in the subject's behavior when a large change did in fact occur.

The C-statistic also suggested nonsignificant changes in trend, though the data were very unstable and highly variable. For instance, the C-statistic indicated a nonsignificant change in trend between self-charting and individual task objectives for Subject 1 in Figure 4. However, there appeared to be gradually increasing variability in responding as the individual task objectives phase progressed. There also appeared to be an overall decrease in direct patient contact beginning to occur. Neither change was suggested by the nonsignificant value of the C-statistical analysis.

Rather than rely on the C-statistic to evaluate possible trend changes, one might continue trying to gain better experimental control over responding by the subjects. Changes in trend would be much more apparent on visual inspection of charts if fluctuations in daily responding were reduced and controlled. The fluctuations in daily responding by some subjects in some phases could preclude visual identification of changes in responding. The use of the C-statistic could divert the experimenter from the goal of gaining better

experimental control over the behaviors so visual inspection and analysis of data charts could be sufficient.

Comparison with Past Goal-Setting Research

Results of this study generally did not demonstrate the very large changes in employee behaviors seen in the majority of previous studies in which some type of objective goals were utilized. Closer inspection of previous studies indicates that other variables besides goal setting may have contributed to the results of thes studies. Comparison of this study with previous studies suggests that goal setting alone may not be nearly as effective as when combined with other procedures.

For example, there was no pay contingency on increased direct patient contact similar to the piece-rate system in effect in Latham and Kline's 1974 study of logging operations. There was also no public posting across subjects of each person's performance. As such, there was no public knowledge that someone had failed to achieve a goal as in Latham and Baldes (1975, and Eldridge, Lemasters and Szypot (1978). There was no contingent praise for achieving the goal, as in the studies by Eldridge et al. (1978), Latham and Baldes (1975), and Sulzer-Azaroff and Santamaria (1980). There was no direct relation between production increases and dollar incentives for management to support the procedure as in the 1978 study by Eldridge, Lemasters and Szypot.

Likewise, there was no day to day participation by line management in data collection, posting and reporting as in the 1980 study by Sulzer-Azaroff and Santamaria.

Most of the previous studies also involved very limited ranges of behavior by employees. For instance, logging crews were only involved in cutting trees. By comparison, the psychologists would legitimately engage in a variety of activities that competed with direct patient contact. Previous studies also involved physically limited or constricted work settings where behaviors occurred. Truck drivers had to be in one truck on one route (Latham and Baldes, 1975). By comparison, the psychologists in this study not only worked in an office but also in at least 10 other buildings on grounds and some locations outside the facility. Their opportunities to physically avoid direct patient contact were very high simply because of the physical arrangement of the work sites. In summary, a variety of variables present in previous studies could have contributed to the large behavior changes observed after goal setting was implemented. The absence of some of these variables in this study could account for some of the smaller behavior changes observed. Sulver-Azaroff (1978) also reported some weak effects of goal setting when similar variables were absent.

Objective goal setting did produce some apparent changes in behavior in this study. There were some similarities

between this and previous studies that might account for these effects. The goal setting for psychologists provided standards for comparison where none previously existed, as in most of the goal setting studies. There was a "hard" goal provided by someone other than the subject rather than a "do your best" goal or one established by the subjects themselves. The study involved very simple recording and reporting procedures, as emphasized in several studies. The self-recording and charting provided "knowledge" of their own results to subjects through feedback. Several goal theorists and management-by-objectives authors stress this point in discussing the effects of goal-setting on subjects. This study also involved setting priorities for tasks and attempted to limit competing activities, as in the 1979 study by Schnier, Pernick, and Bryant. More emphasis was placed on observable behaviors and tasks involved in achieving the general goal of increasing direct patient contact, as in the 1978 study by Terborg and Miller.

Self-recording of behaviors provided a useful means of monitoring and studying which behaviors or classes of behaviors occurred on the job and in what proportions. When this process was implemented, rather large disparities appeared between behaviors specified in the job description and those actually occurring on the job in a state hospital. A variety of behaviors and duties were recorded that were not specified in the job description. Some activities such

as research or teaching lower lever staff were included in the job description but seldom if ever actually occurred on the job. As such, actual employee behaviors deviated considerably from those intended by the system planners. The variability in day to day behaviors by the state hospital psychologists suggested a system was operating that provided for little uniformity, consistency or control over time allocation.

The behaviors of state hospital psychologists also differed considerably from those of private hospital psychologists. One might have expected the private practice psychologists to behave differently due to the monetary contingencies on their behaviors. However, the private hospital and private practice psychologists were more similar in their behaviors than either group was to the state hospital psychologists. One would have expected state and private hospital psychologists to behave more similarly since both functioned in salaried positions under similar accreditation guidelines, personnel rules, administrative structures and pay systems. Instead, paperwork consumed much larger proportions of time in the state hospital. Direct patient contact consumed comparatively less time. The state hospital system allowed wide variability in direct patient contact.

Implications for Changing Psychologists' Behaviors in State Hospital

Should one attempt to increase direct patient contact by the psychologists as attempted in this study, the aversiveness of patient behaviors could be problematic. One could expect some avoidance of patients who bite, hit, drool, soil themselves or engage in a variety of other maladaptive behaviors. Likewise, conducting elementary programs such as toothbrushing or color identification could become boring rather rapidly and would not necessarily require a psychologist to complete them. Various types of incentives such as bonuses, extra time off work, or tuition reimbursement might be useful in helping reinforce more direct patient contact by psychologists in the state setting.

Union contracts and personnel codes have eliminated using possible reinforcers such as extra vacation time or bonus pay to differentially reinforce behavior classes such as direct patient contact in Illinois state hospitals. Pay and time off are generally on a time-based schedule rather than response based. The present study attempted to use alternative means of providing objectives for behavior increases in direct patient contact. None involved presenting response-contingent consequences such as cash bonuses or extra paid time off. Likewise, there were no response-contingent aversive consequences such as verbal or written

reprimands, or suspensions. The personnel code does allow for these types of negative consequences but does not specifically allow them for employee behavior problems such as spending too little time in direct patient contact. An administrator would have to present a written guideline or order stating how much time was to be spent in direct patient contact and the division of time among various duties. The employee could be disciplined for insubordination for failing to meet the requirements. In the absence of data supporting the administrator's guidelines for direct patient contact as being beneficial to patients or congruous with other settings such as private hospitals, the disciplinary action could very well fail in a grievance hearing anyway. The administrator's initial order or guideline could simply be found in error or not substantiated by available data.

In private industrial settings, production tasks are very carefully timed and labor costs allocated according to projected standard times. Actual production times by an employee can then be compared with the standard allowable time. When necessary, contingencies can be applied to the employee's behavior if the actual times exceed projected times or do not match the allowable division of time. Providing individual duty objectives had some effects on employee behaviors in this study, even without the support of behavioral consequences. This suggests that efforts should be made to establish performance standards for

completing tasks and follow-up procedures developed to maintain performance in state hospital settings also.

Hospital administrators, consumer groups or others interested in the care of patients dependent on state hospital services might consider further studies on the behaviors of professionals working in these settings. If studies indicated substantial differences between the behaviors of professionals working in the public and private sectors, a change in behavior might be in order for treatment professionals. Where personnel codes, union contracts or other conditions in the public sector prevent reinforcing target behaviors with pay, tangible items, or paid time off, then the interests of the consumer might be better served by altering the codes or contracts. The political ramifications then become very obvious when one considers altering a system that could affect more than simply four psychologists in a whole state mental health department. The fact that the professionals behave as in this study points up the need for further such studies. The relative absence of data on specific behaviors or classes of behaviors by employees working in the system will only serve to prolong inadequate work rules, pay procedures and other reinforcement methods. Where service consumers have a choice, they could look elsewhere for different service providers. The patients in this study are powerless to do so as are their relatives or other concerned parties. The potential for

abuse through inadequate services is obvious, even though treatment professionals are on the payroll and physically present at the facility.

APPENDIX 1

INDIVIDUAL DATA ENTRIES RECORDED BY SUBJECTS DURING PHASE 1

Subject	Date	Direct patient contact	Interobserver Agreement	Paper Work	Interobserver Agreement	Third party Contact	Interobserver Agreement
1	4/1	30		30		210	
				120			
	4/6	15		45		30	
				120		135	
	4/7	45		60		45	45
		30		120		15	
						15	
						30	
	4/8	30	30	120	120	50	
				125		30	30
	4/11	30		150		30	25
				45		25	
				105			
2	3/29	40	40	10		10	
		15	15	20		30	95
		25		45		95	95
		35		35			
				25			
				45			
				40			

APPENDIX 1 (continued)

Subject	Date	Direct patient contact	Interobserver Agreement	Paper Work	Interobserver Agreement	Third party Contact	Interobserver Agreement
2	3/30	20		35		70	70
		65		50		135	135
				10		65	65
				15	15		
	3/31	25		75		40	
		10		70		45	
		25		45		135	
	4/1	30		35	35	25	25
						55	55
						275	275
						80	
	4/4	45		10	10	75	75
		30		15	15	35	35
		45		70	70		
		25		55			
				20	20		
				20			
				20			
3	3/23				6	80	
		20			44	40	
					62	8	
					85	20	
	3/24			80		75	
		30		5		9	
		25		10		50	
				34		88	
	3/25			8		89	
				240			
		55					

APPENDIX 1 (continued)

Subject	Date	Direct patient contact	Interobserver Agreement	Paper Work	Interobserver Agreement	Third party Contact	Interobserver Agreement
3	3/28					150	
				7		21	
				50		20	
				180			
	3/29			49		142	
				36		71	
				30			
				80			
	3/30			3		12	
				35		107	
				45		139	
	3/31	60		3		11	
		55		40		25	
		80		29			
				45			
	4/1			15		80	
				20		31	
				83			
				35			
				19			
				70			
	4/4	65		5		85	
				85		29	
				30			
		25		80			
	4/5	75		23		95	
				10		85	
				35			
				45			

APPENDIX 1 (continued)

Subject	Date	Direct patient contact	Interobserver Agreement	Paper Work	Interobserver Agreement	Third party contact	Interobserver Agreement
4	4/25	90	90	60	60	120	120
		25	20			15	
		30	30			30	30
		30	30			15	10
		100	100			20	20
						30	30
						15	
	4/26	15	15			15	
		15	15			20	
		60	60			40	40
		85	80			60	55
						45	45
						30	
						45	45
						15	
						15	
						20	
	4/27	90	90			90	90
		30	30			20	15
						45	45
						30	
						30	
						15	15
						45	45
						15	
						30	30

APPENDIX 1 (continued)

Subject	Date	Direct patient contact	Interobserver Agreement	Paper Work	Interobserver Agreement	Third party contact	Interobserver Agreement
4	4/28	15	15			15	15
		70	60			50	50
		15	15			15	15
						15	15
		25	30			30	30
		45	45			15	
		60	60			20	20
						30	30
						55	60
	4/29	80	80			15	15
		30	30			60	60
		20	20			45	40
						15	15
						40	45
						45	45
						30	30
						25	30
						30	30
						30	30
5	12/10	60	60	60	60	30	30
		30	30			60	60
						30	30
						60	60
	12/11	60	60	60	60	60	60
		30	30			45	45
						45	45
						30	30

APPENDIX 1 (continued)

Subject	Date	Direct patient contact	Interobserver Agreement	Paper Work	Interobserver Agreement	Third Party contact	Interobserver Agreement
5	12/13	60	60			90	90
		60	30			30	30
						60	60
						30	30
	12/14	45	45	45	40	60	60
				60	60	120	120
						45	45
						45	45
						50	50
	12/15	90	90	60	60	90	90
						60	60
	4/25	75	75			30	30
		15	15			30	30
		15	15			30	30
		15	15			45	45
		15	15			120	120
		30	30			15	
		60	60			15	15
		30	30				
		30	30				
	4/26	30				30	
		75				60	
		15					
		30					
		15					
	4/27	15				75	
		30					
		45					
		60					
		15					

APPENDIX 1 (continued)

Subject	Date	Direct patient contact	Interobserver Agreement	Paper Work	Interobserver Agreement	Third party contact	Interobserver Agreement
5	4/29	30	30	30	30	30	30
		15	15			45	45
		30	30			15	
		75	75				
		15	15				
6	2/7	50	50	9		4	90
		64	60	11	10	90	20
		73	70			20	
	2/8	60	60	3		17	
		63	60	3		2	
		50	50	8		4	
		32		5		2	
		56	60	12	10	15	15
		27	30	16	15	19	20
		55	55			7	
	2/10	50	50	8		22	20
		50	50	15	15	5	5
						11	10
	2/12	51	50				
		59	60	10	10	5	
		63	60				
		55	55				
	2/14	50	50	9	10	5	
		70	70	6			
		67	65	61	60		
		70	70				

APPENDIX 1 (continued)

Subject	Date	Direct patient contact	Interobserver Agreement	Paper Work	Interobserver Agreement	Third party contact	Interobserver Agreement
6	2/15	57	55				
		50	50				
	2/17	50	50	12	10		
		55	55				
		61	60				
	2/19	50	50	30	30		
		52	50				
		56	60				
		70	70				
		55	55				
	2/21	55	55	13	15		
		50	50				
	2/22	50	50	5			
		50	50	8			
		55	55	10			
		55	55				
		70	70				
	2/24	55	55	15	15	60	60
		75	75	7			
		60	60				
	2/26	60	60	15	15		
		55	55				
		55	55				
	2/28	60	60	13		60	60
		55	55	30	30	60	60
	3/1	60	60	20	20	15	15
		35	35	15	15	75	75
		69	70				
		30	30				

APPENDIX 1 (continued)

Subject	Date	Direct patient contact	Interobserver Agreement	Paper Work	Interobserver Agreement	Third Party contact	Interobserver Agreement
6	3/5	55		25		5	
		60				15	
		60				70	
	3/7	59		15		74	
		48		25		10	
		54					
		75					
		57					
	3/12	34	34	3		3	
		56	57	4		10	
		59	60				
		76	76				
7	2/7	50	50	5			
		55	55	5			
		45	45	5			
		50	50	5			
		30	30	10			
		50	50	5			
		65	65	15	45		
		35	30				
		10					
	2/10	50		5			
		50		5			
		50		5			
		50		5			
				5			
	3/8	50	50	5			
		50	50	5			
		110	110	10			
		50	50	10			
		45	45	5			
		35	30	15			
		75	75	5	60		

APPENDIX 1 (continued)

Subject	Date	Direct patient contact	Interobserver Agreement	Paper Work	Interobserver Agreement	Third party contact	Interobserver Agreement
7	3/14	50	50	5			
		50	50	5			
		110	110	10			
		50	50	10			
		45	45	5			
		35	30	15			
		75	75	5	60		
	3/17	55	55	5		30	30
		55	55	5		15	15
		50	50	5			
		50	50	5			
		45	45	5			
		60	60	5	30		
		60	60				
	3/18	50		5		15	
		55		5		25	
		55		5			
		40		5			
		50		5			
		55		5			
	3/21	55	55	5		20	
		50	60	5			
		50	45	5			
		55	55	5			
		55		5			
				45			
				65			
	3/22	50		5			
		50	155	5		10	
		40		5		10	
		50		5		10	
		45					

APPENDIX 2

DAILY TOTAL TIMES BY CATEGORY RECORDED BY SUBJECTS DURING PHASE 2

	Direct Patient Contact	Interobserver - Agreement Totals	Paper work	Interobserver Agreement Totals	Third Party Contact	Interobserver Agreement Totals	Miscellaneous	Interobserver Agreement Totals	Total Recorded Time	
Subject #1										
Baseline	220	220	30	30	43	45	15		308	
	153	145	15	15	172	180			340	
	180		125		83				388	
	263		65		70				398	
	180	180	0	0	30	30	240	240	450	
	90		120		10				220	(half-day)
	150		0		235				385	
	120		0		240				360	
	120	120	195	200	105	105			420	
	270		30		105				405	
	0		0		420				420	
	20		60		300				380	
Scheduling	0	0	0	0	240	240	60		300	
	240		0		0				240	(half-day)
	75		135		180				390	
	0		60		405				465	
	30	30	0	0	55	60	60	60	245	(half-day)
	60		60		195				315	
	210		0		60				270	(half-day)
	120	120	60	60	135	130	30		345	
	105		90		120		60		375	
	60		60		270				390	
	150		165		35				350	
	30		30		315				375	

APPENDIX 2 (continued)

	Direct Patient Contact	Interobserver Agreement Totals	Paper work	Interobserver Agreement Totals	Third Party Contact	Interobserver Agreement Totals	Miscellaneous	Interobserver Agreement Totals	Total Recorded Time
Self-Charting	0	0	0	0	360	360			360
	147		125		102				374
	30	30	155	150	115	120			300
	0		45		360				405
	155		115		105				375
	155	150	50	50	110	110			315
	130		115		45		105		395
	120		35		180				335
	225		120	120	75	75			420
	170	225	50		30		105		355
	180	180	50	60	0		120	120	350
Task Objectives	215	215	63	60	55	60			378
	205		45		140				390
	120		140		0				365
	180	180	80	80	150	150			440
	65		0		90				365
	180		30		0				355
	180	180	50	45	160	160			390
	35		125		115				395
	180		155		100				435
	215		185		0				440

APPENDIX 2 (continued)

	Direct Patient Contact	Interobserver Agreement Totals	Paper work	Interobserver Agreement Totals	Third Party Contact	Interobserver Agreement Totals	Miscellaneous	Interobserver Agreement Totals	Total Recorded Time
Subject #2									
Baseline	115	120	220	220	135	135			470
	85		110		270				465
	35		190		220		25		445
	30		35		355		80		500
	145		210		110				465
	0	0	135	135	255	250	65	60	455
	0	0	195	190	135	135	55	60	385
	180		50		205				435
	15		225		190				430
	175		170		85				430
	75		275		105				455
	20	20	90	90	150	150			345
Scheduling	0		75		205		120		400
	30		55		345		0		430
	100	90	0	0	95	90	60		255
	135		70		140		115		460
	0	0	70	70	280	285	80	90	430
	145		0		75		155		375
	115		195		125		85		520
	0		0		455		0		455
	185		135		120		10		450
	160		100		135		0		395
	0	0	110	110	80	80	240	240	430
	0		130		205		0		335
	0		0		290		140		430
	65		160		205		0		430
	110	120	240	240	125	120	0		475
	0		120		310		0		430

APPENDIX 2 (continued)

	Direct Patient Contact	Interobserver Agreement Totals	Paper work	Interobserver Agreement Totals	Third Party Contact	Interobserver Agreement Totals	Miscellaneous	Interobserver Agreement Totals	Total Recorded Time
Self-Charting	105	105	325	330	0	0	40	45	430
	65		75		315				455
	280		90		0				370
	290		50		130				470
	45	45	125	120	65	60			235
	110		170		75				355
	200		55		130				385
	45		130		155				330
	130		125		115				370
	190	190	120	120	90	90			400
	135		315		10				460
	170		0		260				430
	155		140		150				445
	40		45		205		165		455
Task Objectives	245		100		140				485
	250		0		210				460
	0	0	75	75	345	345			420
	200		60		150				410
	240		125		85				450
	165		180		130				475
	290		55		0		85		430
	195		90		135				420
	250		130		70				450
	180		120		135				435
	140	140	65	60	130	130	70	60	405
	105		75		145		100		425
	235		240		0				475

	Direct Patient Contact	Interobserver Agreement Totals	Paper work	Interobserver Agreement Totals	Third Party Contact	Interobserver Agreement Totals	Miscellaneous	Interobserver Agreement Totals	Total Recorded Time
Subject #3									
Baseline	220	220	30	30	43	45			293
	153		15		172				340
	180		125		83				388
	263		65		70				398
	180	180	0	0	30	30			210
	75		295		20				390
	80		260		105				445
	125		70		195				390
	0		175		270				445
	110	110	75	75	60	60			245
	65		210		65				340
	16		135		210				350
	0		120		220				370
	220		75		50				345
	0		180		80				575
	125		0		255				380
	145	145	0	0	195	190			340
Scheduling	60	60	110	110	105	100			275
	0		225		45				270
	20		60	60	0	0	220	220	300
	0		355		30				385
	30	30	125	120	225	225			380
	0		215		180				395
	70		170		120				360
	60		60		305				425
	0		345		0				345
	60	60	225	220	240	240			525
	110		45		195				350

APPENDIX 2 (continued)

	Direct Patient Contact	Interobserver Agreement Totals	Paper work	Interobserver Agreement Totals	Third Party Contact	Interobserver Agreement Totals	Miscellaneous	Interobserver Agreement Totals	Total Recorded Time
Self-Charting	90	90	270	270	0				360
	75		180		120				375
	0		0		450				450
	205		130		0				335
	240		120		105				465
	130	130	150	150	0	0			280
	125		310		0				435
	115		280		0				395
	30	30	10		315	310	120		475
	95		45		260				400
	230		0		15				245
	0	0	0	0	330	330			330
Task Objectives 6½ hr. day	0	0	260	265	0	0			360
	105		255		45				405
	45		175		95				415
	50	50	180	180	85	90			415
	90		295		40				425
	140		245		0				385
	50		335		15				400
	345	345	90	90	0				435
	0		435		0				435
	60		140		180				380
	0		0		330				390
	405		0		0				405

APPENDIX 3
POSITION DESCRIPTION DEFINITIONS

State Hospital Salaried Psychologists

Initially Listed Duties

Psychological Assessment: Directly working with a patient to complete I.Q., projective, academic achievement, behavior scale or other formal psychological assessment. Begin timing at first visual observation of patient, stop at end of observation.

Complete Diagnosis: Directly interviewing or visually observing a patient's behavior to arrive at a formal diagnosis. Begin timing at first auditory or visual observation of patient, stop at end of observation.

Conduct Psychotherapy: Personally discussing problems with patients to set treatment goals, suggest alternative behaviors, conduct desensitization or other procedure, or conducting any other behavior change program with a patient. Begin timing on entry to office, stop on exit from office.

Conduct Counseling-Family: Personally discussing problems only with family members of a patient, making recommendations, suggesting behavior strategies or other behavior change procedures, without the patient in attendance. Begin timing on entry to office, stop on exit from office.

Prescribe Therapy: Presenting to someone other than the patient, through verbal or other means, the methods to be used in attempting to change a patient's behavior. Begin timing at beginning of discussion, stop at end of discussion. If writing, begin at beginning of writing, stop at end of writing.

Provide Treatment Recommendations: Presenting to someone other than the patient, through verbal or other means, suggested behaviors to change and/or methods of changing them, or other suggestions from evaluation, education, or referral. Begin timing at beginning of discussion or writing, stop at end of discussion or writing.

Establish Unit Treatment Concepts: Either verbally or otherwise developing goals and methods of changing behavior for a whole unit or program through personally working with administrative or clinical staff. Begin timing at beginning of discussion or writing, stop at end of discussion or writing.

Develop Data Collection Procedures: Designing data sheets, written instructions, training procedures and other components of a data collection procedure for an individual or unit program. Begin timing at beginning of writing, stop time at end of writing.

Making Rounds: Touring a unit or residential house and conferring with staff about patient behavior problems, programs or other issues related to patient care and treatment. Begin timing on leaving office, stop upon return to office.

Instruct Direct Care Staff in Data Collection: Personally presenting verbal or other instructions to staff who will be working directly with a patient, including follow-up or "refresher" instructions. Begin timing at first verbal interaction with staff, stop at end of verbal interaction.

Train Lower Lever Staff: Personally conduct a class or individual session in which technicians or other subordinate staff are presented with information designed to increase their skill levels with respect to patient care. Begin timing at beginning of class or session, stop at close of session.

Complete Psychological Research: Directly observing, talking with or testing a patient to complete components of a formal research project. Begin timing at first visual contact or verbal interaction, stop timing at end of visual contact or verbal interaction.

Act as a Research Team Leader: Directly discussing a research project with other treatment staff to establish procedures or teach staff how to conduct a research project. Begin timing at beginning of meeting, stop at end of meeting.

Develop Research Designs: Prepare written statistical or single-subject design for a research project. Begin timing at beginning of writing, stop timing at end of writing.

Evaluate Research Findings: Prepare written document concerning results of a research program in which research methods are critiqued or results discussed. Begin timing at beginning of reading or writing, stop time at end of reading or writing.

Prepare Research Reports: Prepare written report of a research program including one or more of literature review, methods, results and discussion sections. Begin timing at beginning of writing, stop timing at end of writing.

Advise Management on Programs: Personally work with management staff to present recommendations for new programs, changes in existing programs or termination of a program at the individual patient, unit or organizational level. Begin timing at beginning of discussion, stop timing at end of discussion.

Provide Advice on Programming: Verbally advise administrative or clinical staff, staff of workships, schools, or other facilities, or others besides a patient with respect to behavioral program procedures. Begin timing at beginning of discussion, stop timing at end of discussion.

Consult with Several Treatment Teams: Discuss patient treatment or programs with social workers, physicians, psychologists, technicians or other groups of treatment or administrative staff. Begin timing at beginning of discussion, stop at end of discussion.

Unlisted Observed Duties

Read Staffings, Injury Reports, Program Reviews: Begin timing at beginning of reading, stop at end of reading.

Escort Patient, Pick-up Equipment: Either walk or ride along in a car to transport a patient or equipment. Begin timing on leaving office, stop timing on return to office. Include waiting time at office on medical consultations.

Review Admissions Book: Read administrative record of patients admitted to a program. Begin timing at beginning of reading, stop timing at end of reading.

Xeroxing: Personally making Xerox or other copies of documents. Begin timing at start of xeroxing, stop at end of xeroxing or collating, whichever is last.

Write Discharge Summary: Write out document which serves as summary of patient treatment up to the point of discharge from program. Begin timing at beginning of writing, stop timing at end of writing.

Make Family Phone Calls: Personally call patient's family regarding official business. Begin timing at beginning of dialing, stop at end of conversation.

Initial Interview/Social History: Write document which is a record of information obtained in first interview with patient or historical information obtained from patient or others. Begin timing at beginning of conversation, stop at end of conversation.

Chart Progress Notes: Write entry in patient's medical records concerning patient's behaviors in relation to treatment plan. Begin timing at beginning of writing, stop timing at end of writing.

Write Staffing Report: Write document required of psychologist for entry into habilitation plan. May include treatment recommendations, diagnosis or other information required. Begin timing at beginning of writing, stop at end of writing.

Direct Behavioral Observation: Personally observing, either visually or auditorily, the behavior of a patient. Begin timing at first visual or auditory contact, stop at end of visual or auditory contact.

Write Evaluation Report: Write results of psychological assessment. Begin timing at beginning of writing, stop timing at end of writing.

Typing: Personally typing official records. Begin timing at beginning of typing, stop timing at end of typing.

Write Behavioral Program: Write procedures to be followed by staff in attempting to change or maintain a patient's behavior, written in specified format. Begin timing at beginning of writing, stop at end of writing.

Attend Administrative Meeting: Be physically present at a meeting with one or more other employees or professional regarding administrative matters. Begin timing on entering meeting, stop on leaving meeting.

Fill in Behavior Scale: Complete in writing an Adaptive Behavior Scale, Fairview Scale or other similar document. Begin timing at beginning of writing, stop at end of writing.

Review Equipment Catalog: Read or visually scan catalog for equipment to be used in treatment programs. Begin timing on opening catalog, stop on closing catalog.

Learn/Operate Computer Program: Attend computer class, practice with computer, or read related material. Begin timing on entering class, contact with computer terminal or beginning of reading. Stop on leaving class, breaking contact with terminal, or cessation of reading.

Private Hospital Psychologists

Billable Time

Psychologists Initial Interview and Evaluation: Personally meeting with a patient to obtain case history, conduct mental status examination and arrive at preliminary case disposition. Begin timing at beginning of meeting, end timing on leaving meeting.

Individual Therapy: Personally discussing with the patient goals, issues, behavioral procedures, obtaining further information about specific issues and otherwise engaging in some type of procedure designed to change the patient's behavior, while meeting personally with the patient. Begin timing on entering office, and end timing on leaving office.

Consultation for Evaluation of Another Doctor's Patient: Personally interviewing a patient for the purpose of making an assessment or treatment recommendation for a patient under the supervision of another doctor. Begin timing at beginning of conversation, end timing at end of conversation.

Family Therapy with Patient: Personally discuss behavior problems with the patient and one or more family members simultaneously to set treatment goals, suggest alternative behaviors, develop solutions to common problems or conduct any other behavior change program. Begin timing on entry to office, stop timing on leaving office.

Family Therapy without Patient: Personally discuss behavior problems with one or more family members of a patient, in the absence of the patient, to set treatment goals, suggest alternative behaviors, develop solutions to common problems or conduct any other behavior change program. Begin timing on entry to office, stop timing on leaving office.

Multi-Family Group Therapy: Personally meeting with two or more members of different families simultaneously to set treatment goals, suggest alternative behaviors, develop solutions to common problems or conduct any other behavior change program.

Group Psychotherapy: Personally discussing problems with two or more patients simultaneously to set treatment goals, suggest alternative behaviors, develop solutions to common problems or conduct any other behavior change program with multiple patients. Begin timing on entry to office, stop timing on leaving office.

Telephone Consultation: Discuss a patient's case over the telephone for purposes of obtaining diagnostic information or suggesting procedures for behavior change. Begin timing at beginning of dialing, end timing at end of conversation.

Environmental Intervention on Behalf of Patient with Agency, Employer or Institution: Personally meeting with a third party such as an employer to discuss case related matters or suggest ways of interacting with the patient to improve patient's behaviors. Begin timing at beginning of conversation, end timing at end of conversation.

Interpretation or Explanation of Results of Examination or Procedures to Family: Personally discussing with family members the results of a behavioral assessment or behavioral intervention. Begin timing at beginning of conversation, end timing at end of conversation.

Prepare Report on Patient's Status, History, Treatment or Progress for other Doctors, Agencies, or Insurance Carriers: Prepare in handwriting or dictate report as indicated. Begin timing at beginning of writing or dictation, end timing at end of writing or dictation.

Hospital Discharge Day Management: Completing paperwork necessary for the discharge of a hospital patient including writing discharge summary, making follow-up appointment, forwarding reports and other necessary paperwork. Begin timing at beginning of writing, phone call or dictating, end timing at end of writing, phone call or dictation.

Psychological Testing: Personally administer behavior scale, I.Q. test, projective testing or other assessment instrument with a patient. Begin timing on entering office, stop timing on leaving office.

Diagnostic Interview: Personally discussing with a patient the presenting behavior problems, family interactions, historical information and other factors with the purpose of arriving at a diagnosis. Begin timing at beginning of conversation, end timing at end of conversation.

Testing: Same as psychological testing.

Supervision of Testing: Personally observing or advising another psychologist who is administering a psychometric test or preparing a report of test results. Begin timing at beginning of session or conversation, end timing at end of session or conversation.

Report Writing: Either handwriting or dictating a document presenting current or past case information, results of testing, results of treatment or other case related matters either for the case fil or other parties such as physicians. Begin timing at beginning of writing or dictation, end timing at end of writing or dictation.

Hypnotherapy: Personally conducting a procedure with a patient in which verbal suggestions are made to a patient regarding desired behavior changes. Suggestions are preceded by a period of photic stimulation combined with relaxation procedures. Begin timing on entering office with patient, end timing on leaving office with patient.

Consulting Services Patient Related: Personally discussing a patient, patient behaviors or case management with another professional, agency or employer. (Use this category if the service can not be recorded under a preceding category.) Begin timing at beginning of conversation, end timing at end of conversation.

Patient Related Non-Billable Time

Telephone Conversation: Providing service to a patient by making suggestions for behavior change procedures or obtaining diagnostic information, with either the patient and/or family members. Begin timing at beginning of dialing, end timing at end of conversation.

Contact with Outside Agencies: Either discussing over the telephone or meeting in person with representatives of a school, employer or others outside the patient's family in regard to patient case management. Begin timing at beginning of dialing or conversation, end timing at end of conversation.

Completion of Reports for Outside Agencies: Either handwriting or dictating a document pertaining to a specific patient to be sent to an employer, mental health center, or other agency. Begin timing at beginning of writing or dictation, end timing at end of writing or dictation.

Attend Court Hearing, School Conferences, etc. for Patient: Personally participate in a meeting with one or more third parties, at a school or other organization with respect to patient case management. Begin timing on entering meeting, end timing on leaving meeting.

Travel Time Related to a Patient: Riding in a car, bus or other vehicle to or from an activity related to patient case management. Begin timing on leaving office, end timing on returning to office. Include walking time from office to vehicle and back.

Other Services for a Patient: Any activity directly related to a patient's case management, that can not be entered under another category.

Telephone Intakes: Personally discussin with a patient or other person inital case information for the purpose of admitting a patient to an inpatient or an outpatient program. Begin timing at beginning of conversation, end timing at end of conversation.

Initial Meeting with Patient Family not Billable: Personally presenting introductory information about a program or other service to a patient or family members as a means of suggesting alternative approaches available for treatment. Begin timing at beginning of conversation, end timing at end of conversation.

Progress Notes, Updating Patient Records: Write entry in patient's medical records concerning patient's behaviors in relation to treatment plan. Begin timing at beginning of writing, stop timing at end of writing.

Completing Reports for Others, Not Patient Related: Either handwriting or dictating a document related to program proposals, program management, disciplinary actions, patient profiles or other items not related to any specific case, at the request of another professional. Begin timing at beginning of writing or dictation, stop timing at end of writing or dictation.

Travel Time not Patient Related: Riding in a car or other vehicle to or from some activity not specifically related to the case of a patient. Examples include traveling to a seminar, traveling between offices, or picking up materials. Begin timing on leaving office, stop timing on entering office.

Meetings, Conferences with Staff: Personally meeting with secretaries, hospital administrators, mental health technicians, or others on matters pertaining to programs but not related to any specific case. Begin timing at beginning of meeting, end timing at end of meeting.

Supervision of Hospital Staff: Personally meeting with staff of an inpatient treatment program for purposes of program development, disciplinary action or other administrative matters. Begin timing at beginning of meeting, stop timing at end of meeting.

Training Seminars-On Site: Either attending or presenting a formal educational class on research, approaches to program management, or other matters related to inpatient or outpatient programs. Begin timing on entering seminar, stop timing on leaving seminar.

Training Seminars - Other Locations: Either attending or presenting a formal education class on research, approaches to program management, or other matters related to inpatient or outpatient programs. Begin timing on entering seminar, stop timing on leaving seminar. Enter travel time under "Travel time not patient related."

Meeting with Referral Sources: Personally attending a meeting with representatives of schools, agencies, police or others who might have prospective patients. Begin timing at beginning of meeting, stop timing at end of meeting. Include travel time under "Travel time not patient related."

Staff Meeting: Administrative meeting with other professionals in regard to some aspect of practice management. Begin timing on entering meeting, stop timing on leaving meeting.

Completion of Paperwork Required for Billing: Handwriting or dictating items relating to patient records or insurance forms necessary for insurance billing or direct patient billing. Begin timing at beginning of writing or dictation, end timing at end of writing or dictation.

Decision Making, Administrative Tasks: Reading administrative documents or preparing administrative documents representing some type of decision to be implemented. Begin timing at beginning of reading, writing, or dictating, stop timing at end of reading, writing, or dictating.

Miscellaneous: Enter any task that will not fit one of the above categories along with start and stop times. Discuss the task with the experimenter at the next data collection meeting.

Private Practice Psychologists

Billable Time

Intake Interview: First meeting with the patient and/or family members at which a social history, presenting behavior problems and other relevant information is obtained prior to treatment planning. Begin timing on entry to office, stop timing on leaving office.

Individual Therapy: Personally discussing problems with the patient to set treatment goals, suggest alternative behaviors, conduct desensitization or other procedures, or conducting any other behavior change program with a patient. Begin timing on entry to office, stop timing on leaving office.

Group Therapy: Personally discussing problems with two or more patients simultaneously to set treatment goals, suggest alternative behaviors, develop solutions to common problems or conduct any other behavior change program with multiple patients. Begin timing on entry to office, stop timing on leaving office.

Family Therapy with Patient: Personally discuss behavior problems with the patient and one or more family members simultaneously to set treatment goals, suggest alternative behaviors, develop solutions to common problems or conduct any other behavior change program. Begin timing on entry to office, stop timing on leaving office.

Family Therapy without Patient: Personally discuss behavior problems with one or more family members of a patient, in the absence of the patient, to set treatment goals, suggest alternative behaviors, develop solutions to common problems or conduct any other behavior change program. Begin timing on entry to office, stop timing on leaving office.

Psychological Testing: Personally administer behavior scale, I.Q. test, projective testing or other assessment instrument with a patient. Begin timing on entering office, stop timing on leaving office.

Psychological Report Writing: Either handwriting or dictating the results of formal psychometric testing, direct behavioral observations, interviews, third party reports or historical documents that pertain to a patient's behavior and variables affecting it. Begin timing at beginning of writing or dictating, stop timing at end of writing or dictating.

Writing Behavioral Program: Either handwriting or dictating a set of procedures to be followed by the patient or others, as means of changing target behaviors of the patient. Begin timing at beinning of writing or dictating, stop timing at end of writing or dictating.

Court Hearing: Personally attending a formal judicial hearing concerning competency, commitment, or other matter involving a patient. Begin timing on entry to court or waiting area, stop timing on leaving court or waiting area.

Non-Billable Time

Writing Progress Notes: Writing entry in patient's chart concerning therapy progress, problems, suggested strategies, medication effects or other items relating to treatment of a patient. Begin timing at beginning of writing, stop timing at end of writing.

Letter to Agency, Employers or Others: Either handwriting or dictating a formal letter to an agency, employer or other third party in regard to a patient and case material. Begin timing at beginning of writing or dictating, stop timing at end of writing or dictating.

Court Report: Either handwriting or dictating a formal written report concerning a patient to be presented to a judicial body for competency hearing, trial or other matter. Begin timing at beginning of writing or dictating, stop timing at end of writing or dictating.

Phone Calls to Family, Agencies, or Others: Personally communicating over the telephone to third parties concerning a patient. Begin timing at beginning of dialing, end timing at end of conversation.

Conferring with Other Staff on Care: Formal verbal consultation with another professional concerning case management for a specific patient. Begin timing at beginning of conversation, stop timing at end of conversation.

Direct Contact with Residential Facility Staff: Personally meeting with one or more staff of an agency that provides residential treatment for a patient, in regard to case management. Begin timing on entering meeting, end timing on leaving meeting.

Work on Program Proposals: Writing out suggestions, procedures, changes or other matters pertaining to a treatment program proposed by the psychologist either for an outpatient practice or inpatient treatment unit. Begin timing at beginning of writing, end timing at end of writing.

Dictation: Dictating to a secretary or using a dictaphone to dictate some type of records that directly relate to patient cases or practice management. These records should not fall under one of the preceding categories such as progress notes or program proposals. Begin timing at beginning of conversation, end timing at end of conversation.

Xerox: Personally using a Xerox or other machine to reproduce documents relating to patient care or practice management. Begin timing at beginning of xeroxing, end timing at end of xeroxing or collating, whichever occured last.

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BIOGRAPHICAL SKETCH

The author completed a Bachelor of Arts degree in the Liberal Arts College at Drake University, Des Moines, Iowa, in 1974. His undergraduate major was psychology with an emphasis in applied behavior analysis. After completing his B.A., the author completed a Master of Arts degree in the Department of Psychology at Drake University. This program included a nine-month clinical practicum at the Center for Human Development at Drake University. A year internship was also completed at Woodward State Hospital, Woodward, Iowa, under faculty supervision of Drake University. The Master of Arts emphasis was in applied behavior analysis.

After completing the M.A. degree, the author worked for two years as a psychologist for the Illinois Department of Mental Health. This position involved designing behavioral programs for patients, staff development, consulting with interdisciplinary treatment teams, psychological evaluations, supervising token economies, and group behavioral programs.

The author returned to full-time academic training to complete a Doctorate of Philosophy in psychology at the University of Florida in 1977. The major area was in the experimental analysis of behavior. Applied research was completed at Sunland Center, Gainesville, during the period of residency at the University of Florida.

Upon completion of residency and classes, the author returned to work as a psychologist for three years at the Illinois Department of Mental Health. Further research was completed during this time along with continuing education courses. The author also taught part-time at various community colleges.

The author entered full-time private practice in 1982 at Palos Neuropsychiatric Institute in Palos Heights, Illinois. This partnership includes psychiatrists, a neuropsychiatrist, social workers, neurologists, nurses and psychologists. The author consults to an inpatient adolescent psychiatric program, conducts patient training, coordinates a chronic pain program, and consults to school districts. Other activities include supervising practicum and intern students from various colleges and universities in the Chicago area, and serving on the Board of Directors of Family Care Services, Inc. This is a nonprofit charitable organization offering home health care and homemaker services for needy children and the elderly in the Chicago area. The author is also developing a gerontology program at Palos Neuropsychiatric Institute. Professional activities include affiliations with the Association for Behavior Analysis and the National Academy of Neuropsychologists.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

H.S. Pennypacker, Chairman
Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

James M. Johnston
Associate Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Mark Kane Goldstein
Assistant Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Marc N. Branch
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I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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This dissertation was submitted to the Graduate Faculty of the Department of Psychology in the College of Liberal Arts and Sciences and to the Graduate School, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

August, 1984

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